

## 2.2.3 Natural Infrastructure

### Coconino-Yavapai Focus Area

The Coconino-Yavapai Focus Area is located in the north-central portion of Arizona and consists of Navajo Nation and Hopi Tribal land, private land, state land, and land protected by the federal government in the form of national parks, monuments, or forests (Figure 2-4a).

This region is very large and extremely diverse in terms of biotic communities. Of 13 biotic communities in Arizona, 10 are represented in the Coconino-Yavapai Focus Area. They range from the mesquites, palo verde, saguaro, and cholla of the Arizona Upland Sonoran Desertscrub at elevations of 1,000 to 3,000 feet, to the spruce, fir, and aspen forests at elevations up to 12,000 feet in the Subalpine Conifer Forest. The most prevalent communities are the coniferous forests, stretching from the southeast to the northwest, where elevations begin to rise from the cacti, grass, and pinyon-juniper communities of the desertscrub, grassland, and lower woodlands. Table 2-1 lists the biotic communities within the study area.

Table 2.1 Biotic Communities

Biotic Community	Focus Area
Rocky Mountain and Great Basin Alpine Tundra	<ul style="list-style-type: none"> <li>Coconino-Yavapai</li> </ul>
Rocky Mountain and Great Basin Subalpine Conifer Forest	<ul style="list-style-type: none"> <li>Coconino-Yavapai</li> </ul>
Rocky Mountain Montane Conifer Forest	<ul style="list-style-type: none"> <li>Coconino-Yavapai</li> <li>Navajo-Hopi</li> <li>New River</li> </ul>
Great Basin Conifer Woodland	<ul style="list-style-type: none"> <li>Coconino-Yavapai</li> <li>Navajo-Hopi</li> </ul>
Madrean Evergreen Forest and Woodland	<ul style="list-style-type: none"> <li>Coconino-Yavapai</li> </ul>
Southwestern (Arizona) Interior Chaparral	<ul style="list-style-type: none"> <li>Coconino-Yavapai</li> <li>New River</li> </ul>
Plains and Intermountain Grassland	<ul style="list-style-type: none"> <li>Coconino-Yavapai</li> <li>Navajo-Hopi</li> </ul>
Semidesert Grassland	<ul style="list-style-type: none"> <li>Coconino-Yavapai</li> <li>New River</li> </ul>
Great Basin Desertscrub	<ul style="list-style-type: none"> <li>Coconino-Yavapai</li> <li>Navajo-Hopi</li> </ul>
Mohave Desertscrub	<ul style="list-style-type: none"> <li>Coconino-Yavapai</li> </ul>
Chihuahuan Desertscrub	<ul style="list-style-type: none"> <li>New River</li> </ul>
Lower Colorado River Valley Subdivision	<ul style="list-style-type: none"> <li>New River</li> </ul>
Arizona Uplands Subdivision	<ul style="list-style-type: none"> <li>New River</li> </ul>

When large areas of land in Arizona are considered, a great deal of habitat diversity is evident. The same is true of the wildlife species living in these habitats. To help protect these species groups, data representing critical areas to wildlife survival throughout Arizona have been generated to aid in planning future development.

### Sensitive Biological Lands

Sensitive biological lands are important to the preservation of wildlife species in Arizona. They encompass both protected and unprotected habitats that wildlife relies on for survival. They consist of Priority Conservation Areas, Priority Grasslands, and Wildlife Linkages across Arizona.

### Priority Conservation Areas (Nature Conservancy)

These are lands and waters that have been identified by the Nature Conservancy as being critical to the conservation of biodiversity in Arizona. Knowledge of these areas can be used to prioritize conservation activities, understand regional significance of a local site, and evaluate activities that may adversely affect conservation values. Conservation areas identified within the Coconino-Yavapai Focus Area are identified below:

Priority Conservation Areas: Coconino-Yavapai Focus Area		
▪ Paria	▪ Grassland Center	▪ Burro Creek Watershed
▪ Grand Canyon	▪ Hualapai East	▪ Mogollon Canyons Complex
▪ Kaibab Plateau	▪ Aubrey Valley	▪ Stoneman Lake
▪ Shinumo	▪ Aubrey Valley Northeast	▪ Wet Beaver Creek
▪ Bodaway Mesa	▪ San Francisco Peaks	▪ Dry Beaver Creek
▪ Mormon Ridges	▪ Wupatki/Painted Desert	▪ Upper Verde River Watershed
▪ Shonto Plateau	▪ Woodruff/Winslow	▪ Agua Fria Watershed
▪ Hamblin Wash	▪ Anderson/Diablo Canyon	▪ Bradshaw Mountains
▪ Monekopi Plateau	▪ Sycamore and Oak Creek Canyons	▪ Cottonwood/Smith Canyon
▪ Shadow Mountain	▪ Bill Williams Mountains	▪ Bill Williams Complex
▪ Cataract Creek	▪ Chino Valley	

The designation of these grasslands is the result of a 2-year study by the Nature Conservancy to delineate grasslands and evaluate their ecological condition in Arizona. Grasslands within the Coconino-Yavapai Focus Area are:

- Native grassland with low shrub cover; < 10% shrub cover, whose herbaceous component is entirely or predominantly native perennial grasses and herbs
- Shrub-invaded native grassland with restoration potential; grassland composed of native perennial grasses and herbs with 10–35% total shrub cover and mesquite or juniper cover at < 15%
- Historical or former grassland; > 15% canopy cover of mesquite and juniper combined, and/or > 35% total shrub cover; perennial grass canopy cover usually < 1%, always < 3%
- Transition grasslands; < 5% canopy cover of perennial grasses and/or severe soil erosion problems
- Unknown grassland condition





# Regional Framework Study: Northern Arizona, Coconino-Yavapai Focus Area

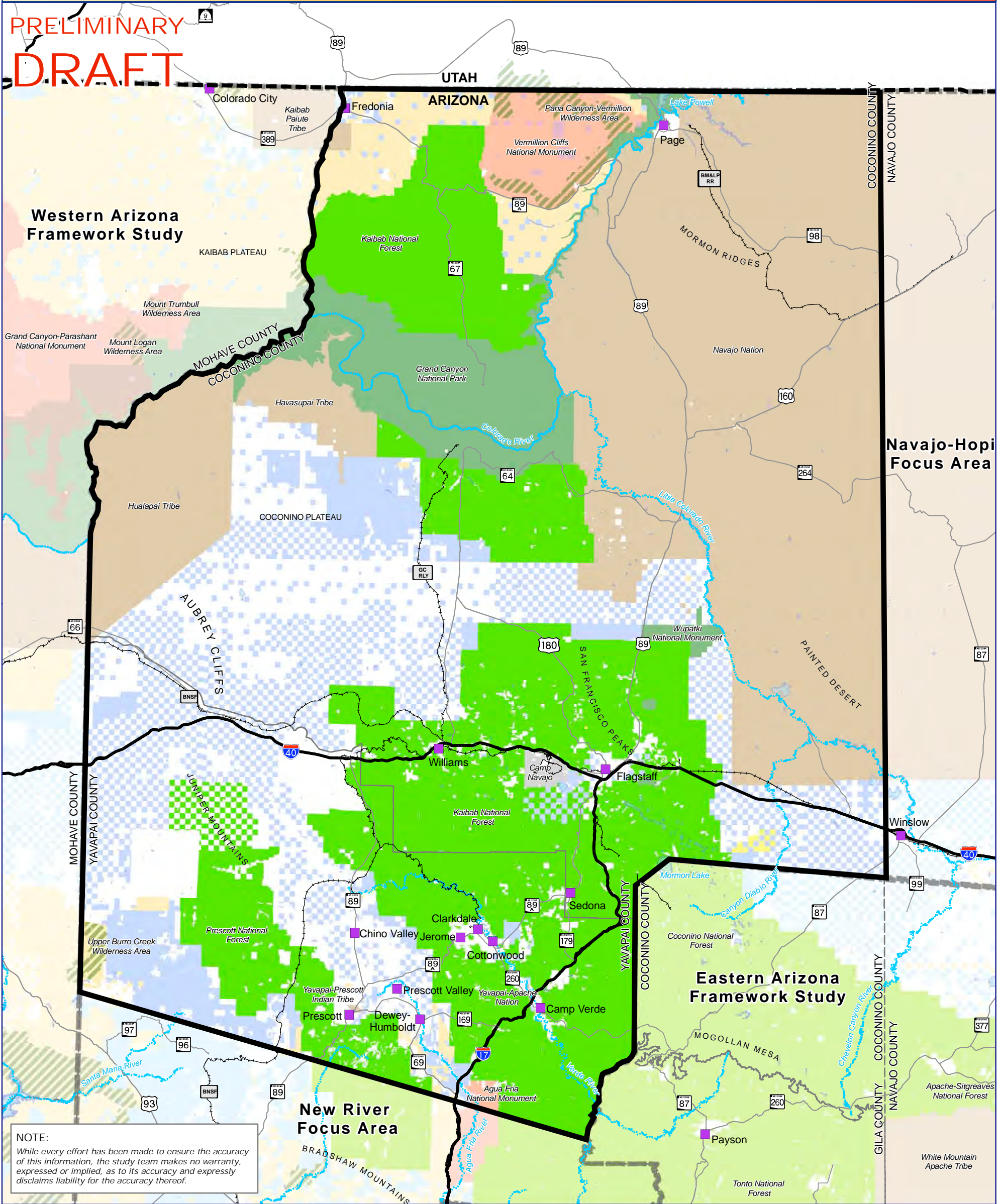
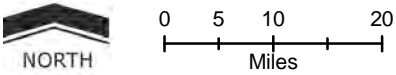
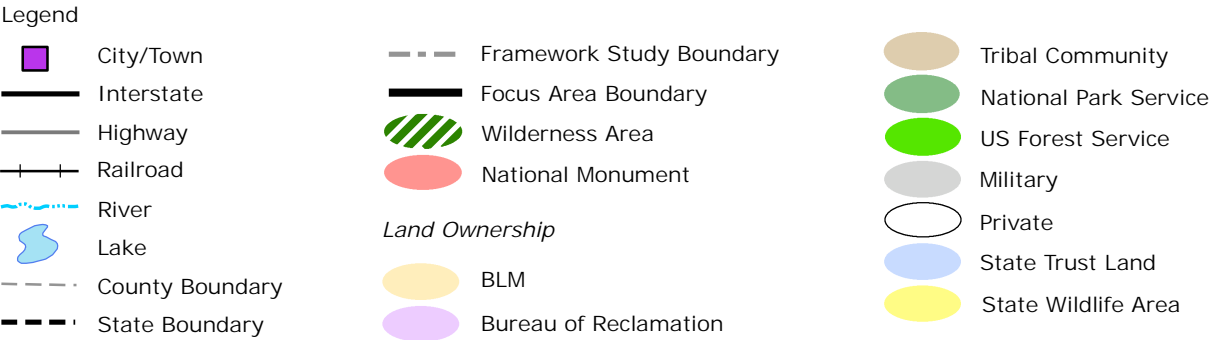


Figure 2-4a Land Ownership and Protected Environmental Areas





▪

## Wildlife Linkages (Arizona Wildlife Linkages Workgroup)

Wildlife linkages are areas designated by the Arizona Wildlife Linkages Workgroup as being crucial to connecting wildlife habitats. These habitats span roads, railroads, fences, canals, and urban development throughout Arizona. The non-binding recommendations can be used as an informational resource for planners and engineers to consider while developing land use plans. Wildlife linkages within the Coconino-Yavapai Focus Area are:

Wildlife Linkages: Coconino-Yavapai Focus Area		
▪ Kaibab-Paunsaugunt Plateau	▪ State Route 179	▪ Valle-Bellemont
▪ Yaeger Canyon-Camp Verde	▪ Cottonwood Sedona	▪ SR 260 West from I-17 to SR 87
▪ Aibab Plateau-North Rim	▪ Deadman Mesa-Gray Mountain	▪ Garland-Arizona Divide
▪ Paria Plateau-Kaibab Plateau	▪ East-West Mogollon Plateau	▪ Oak Creek Canyon-Munds Park
▪ South Rim Grand Canyon	▪ SR 260 Payson-Heber	▪ Mogollon Rim-Navajo Nation
▪ Northern I-17 Corridor	▪ North-South Black Hills	▪ Big Black Mesa-Hell Canyon
▪ Grand Canyon-Prescott National Forest	▪ East-West Prescott National Forest	▪ Coconino Plateau-Kaibab National Forest
▪ Tres Alamos Wilderness-Prescott National Forest	▪ Bradshaw Mountains-Agua Fria National Monument	▪ Cedar Rim/Fredonia Pronghorn Crossing

## Arizona Wilderness Coalition's (AWC) Roadless Character Areas

These are wilderness and roadless areas protected by AWC on federal lands in Arizona.

Table 2.2 Listed Species – Known or Potentially Occurring

Coconino County

Scientific Name		Common Name	Status				Habitat Comments
			ESA	BLM	USFS	State	
AMPHIBIANS							
<i>Bufo microscaphus</i>	Arizona Toad	SC		S		Rocky streams and canyons in the pine-oak belt. Also occurs in lower deserts, e.g.,. Agua Fria River area. Elevation: 480–8,400 feet	
<i>Rana chiricahuensis</i>	Chiricahua Leopard Frog	LT		S	WSC	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs. Elevation: 3,300–8,900 feet	
<i>Rana pipiens</i>	Northern Leopard Frog			S	WSC	Variety of habitats including grassland, brushland, woodland, and forest ranging high into mountains, usually in permanent waters with rooted aquatic vegetation; also frequents ponds, canals, marshes, springs, and streams. Elevation: 2,690–9,155 feet	
<i>Rana yavapaiensis</i>	Lowland Leopard Frog	SC		S	WSC	Habitat generalists that breed in a variety of natural and man-made aquatic systems. Elevation: < 6,400 feet	
BIRDS							
<i>Accipiter gentilis</i>	Northern Goshawk	SC		S	WSC	Breeds in high, forested mountains and plateaus statewide. Elevation: 4,750–9,120 feet	
<i>Athene cunicularia hypugaea</i>	Western Burrowing Owl	SC	S			Variable in open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands, often associated with burrowing mammals. Sometimes in open areas such as vacant lots near human habitation, golf courses, or airports. Elevation: 650–6,140 feet	
<i>Buteo regalis</i>	Ferruginous Hawk	SC			WSC	Breeds in open areas with little topographic relief. Hunting areas are typically open grasslands, preferably those dotted with suitable low hills or short trees that serve as perches. Elevation: 3,500–6,000 feet	
<i>Buteogallus anthracinus</i>	Common Black-Hawk			S	WSC	Obligate riparian nester, dependent on mature, relatively undisturbed habitat supported by a permanent flowing stream. Elevation: 1,750–7,080 feet	
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	C		S	WSC	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries).	

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						Elevation: < 6,500 feet
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	LE		S	WSC	Cottonwood/willow and tamarisk vegetation communities along rivers and streams. Elevation: < 8,500 feet
<i>Euptilotis neoxenus</i>	Eared Quetzal			S		Pine and pine-oak forests. Elevation: 5,040–7,200 feet
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	SC		S	WSC	Steep, sheer cliffs overlooking woodlands, riparian areas, or other habitats supporting avian prey species in abundance. Elevation: < 9,000 feet
<i>Gymnogyps californianus</i>	California Condor	LE				High desert canyonlands and plateaus. Elevation: varies
<i>Haliaeetus leucocephalus</i>	Bald Eagle	SC		S	WSC	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey. Elevation: varies
<i>Haliaeetus leucocephalus</i> (wintering pop.)	Bald Eagle	LT PDL		S	WSC	Wintering habitat will have an adequate food supply and open water such as river rapids, impoundments, dam spillways, lakes, and estuaries. Elevation: varies
<i>Megaceryle alcyon</i>	Belted Kingfisher				WSC	Rivers, brooks, ponds, lakes, coasts, streams, tidal creeks, mangroves, swamps and estuaries. Elevation: 1,840–8,400 feet
<i>Pandion haliaetus</i>	Osprey				WSC	Nests in coniferous trees, alongside or near rivers and lakes in the White Mountains and across the Mogollon Plateau. Elevation: 6,000–7,800 feet
<i>Pinicola enucleator</i>	Pine Grosbeak				WSC	Open coniferous (less commonly mixed coniferous-deciduous) forest and forest edge; in migration and winter also in deciduous forest, woodland, second growth, and shrubbery. Elevation: 2,000–10,000 feet
<i>Plegadis chihi</i>	White-faced Ibis	SC				Primarily freshwater marshes, swamps, ponds, and rivers, especially cattail and bulrush marshes. Nests in marshes, low trees, on the ground (in bulrushes or reeds), or on floating mat. Elevation: 200 feet
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	LT		S	WSC	Nests in canyons and dense forests with multilayered foliage structure. Elevation: 4,100–9,000 feet
FISH						
<i>Catostomus clarki</i>	Desert Sucker	SC	S			Found in rapids and flowing pools of streams and rivers primarily

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						over bottoms of gravel-rubble with sandy silt in the interstices. Elevation: 480–8,840 feet
<i>Catostomus insignis</i>	Sonora Sucker	SC	S			Variety of habitats, from warm water rivers to trout streams. Elevation: 1,210–8,730 feet
<i>Catostomus latipinnis</i>	Flannelmouth Sucker	SC	S	S		Primarily restricted to large and moderately large rivers; larvae inhabit shallow, slow-flowing nearshore areas. Elevation: 1,540–3,160 feet
<i>Catostomus sp. 3</i>	Little Colorado Sucker	SC		S	WSC	In creeks, small to medium rivers, and impoundments. Predominantly found in pools with abundant cover. Also found in riffles. Elevation: 2,200–7,100 feet
<i>Gila cypha</i>	Humpback Chub	LE			WSC	Large, warm turbid rivers, especially canyon areas with deep fast water. Elevation: < 4,000 feet
<i>Gila intermedia</i>	Gila Chub	LE		S	WSC	Pools, springs, cienegas, and streams. Elevation: 2,000–5,500 feet
<i>Gila robusta</i>	Roundtail Chub	SC		S	WSC	Cool to warm water, mid-elevation streams and rivers where typical adult microhabitat consists of pools up to 6.5 feet deep adjacent to swifter riffles and runs. Cover is usually present. Elevation: 1,210–7,220 feet
<i>Lepidomeda vittata</i>	Little Colorado Spinedace	LT		S	WSC	Moderate to small streams in pools and riffles with water flowing over gravel and silt. Elevation: 4,000–8,000 feet
<i>Oncorhynchus apache</i>	Apache Trout	LT		S	WSC	Presently restricted to cold mountain streams with many low-gradient meadow reaches. Elevation: > 5,000 ft
<i>Rhinichthys osculus</i>	Speckled Dace	SC	S			Bottom dweller, found in rocky riffles, runs, and pools of headwaters, creeks, and small to medium rivers; rarely in lakes. Elevation: 1,550–8,920 feet
<i>Xyrauchen texanus</i>	Razorback Sucker	LE		S		Riverine and lacustrine areas, generally not in fast-moving water; may use backwaters. Elevation: < 6,000 feet
INVERTEBRATES						
<i>Anodonta californiensis</i>	California Floater	SC		S		Shallow areas less than 6 feet deep in unpolluted lakes, reservoirs, and perennial streams. Adult mussels typically live in mud or sand and juveniles in loose sand. Elevation: 4,000–

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						8,670 feet
<i>Archeolarca cavicola</i>	Grand Canyon Cave Pseudoscorpion	SC				Subterranean cave habitat probably associated with bats and rodents. Elevation: 4,000 feet
<i>Cicindela oregona maricopa</i>	Maricopa Tiger Beetle	SC	S	S		Sandy stream banks and less commonly on gravels and clays along streambanks. May occur near seeps or reservoir banks. Elevation: 1,092–6,940 feet
<i>Discus shimekii cockerelli</i>	Cockerell's Striate Disc (Snail)	SC	S			Soggy areas such as stream floodplains with no periodic flooding; cool, moist areas. In litter and under rocks and dead wood, often on mountains; rich understory areas. Elevation: 7,000 to 12,000 feet
<i>Metrichia nigrutta</i>	Page Spring Micro Caddisfly	SC				Filamentous algae and moss. Elevation: 3,500 feet
<i>Oxyloma haydeni haydeni</i>	Niobrara Ambersnail		S	S		Indian Gardens population restricted to permanently wet areas fed by a small spring and associated with Typha and other wetland vegetation. Lee's Ferry population restricted to areas with damp or saturated cattail litter, common reed litter, watercress, and sedges growing in saturated soil. Elevation: 3,120–3,780 feet
<i>Oxyloma haydeni kanabensis</i>	Kanab Ambersnail	LE	S	S		Travertine seeps and springs in Grand Canyon National Park. Elevation: 2,900 feet
<i>Stenopelmatus Navajo</i>	Navajo Jerusalem Cricket	SC	S	S		Endemic to sand dunes and sandy washes in northern Arizona. Elevation: 4,890 feet
MAMMALS						
<i>Choeronycteris mexicana</i>	Mexican Long-tongued Bat	SC			WSC	Mesic areas in canyons of mixed oak-conifer forests in mountains rising from the desert. Caves and abandoned mines are favored daytime retreats. Also often found in shallow caves or rock shelters. Elevation: 2,540–7,320 feet
<i>Corynorhinus townsendii pallescens</i>	Pale Townsend's Big-eared Bat	SC				Summer day roosts are found in caves and mines from desertscrub up to woodlands and coniferous forests. Night roosts may often be in abandoned buildings. Elevation: 550–8,437 feet
<i>Dipodomys microps leucotis</i>	Houserock Valley Chisel-toothed Kangaroo Rat	SC			WSC	Shrub-dominated Great Basin desertscrub communities with relatively high shrub cover and sparse grass cover. Elevation:



Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						3,500–6,500 feet
<i>Euderma maculatum</i>	Spotted Bat	SC			WSC	Varied. Found from low desert in southwestern Arizona to high desert and riparian habitats in northwestern Arizona and Utah, and conifer forests in northern Arizona and other Western states. Elevation: varies
<i>Eumops perotis californicus</i>	Greater Western Bonneted Bat	SC				Lower and upper Sonoran desertscrub near cliffs, preferring the rugged rocky canyons with abundant crevices. Elevation: 240–8,475 feet
<i>Idionycteris phyllotis</i>	Allen's Big-eared Bat	SC	S			Ponderosa pine, pinyon-juniper, Mexican woodland, and riparian areas of sycamores, cottonwoods, and willows. Roosts in caves and abandoned mineshafts. Elevation: 1,320–9,800 feet
<i>Lasiurus blossevillii</i>	Western Red Bat				WSC	Riparian and other wooded areas. Roosts by day in trees. Summer roosts usually in tree foliage, sometimes in leafy shrubs or herbs. Often found in trees of fruit orchards. May also roost in saguaro boots and occasionally in cave-like situations. Elevation: 1,900–3,700 feet
<i>Microtus mexicanus hualpaiensis</i>	Hualapai Mexican Vole	LE			WSC	Primarily associated with dry grass/forb habitats in ponderosa pine dominated forest. Elevation: 3,000–8,400 feet
<i>Microtus mexicanus navaho</i>	Navajo Mexican Vole	SC		S	WSC	Occupies prostrate thickets of a variety of shrubs that provide dense cover in areas of high litter and bare ground. Also dry, grassy areas, usually adjacent to ponderosa pine forests, but sometimes as low as juniper woodland or stands of sagebrush. Elevation: 3,800–9,700 feet
<i>Mustela nigripes</i>	Black-footed Ferret	LE				Grassland plains generally found in association with prairie dogs. Elevation: < 10,500 feet
<i>Myotis ciliolabrum</i>	Western Small-footed Myotis	SC	S			Generally inhabits desert, chaparral, western coniferous forest, badland and semiarid habitats, more mesic habitats in southern part of range. Rely heavily on mines for hibernation. Elevation: 2,120–8,670 feet
<i>Myotis evotis</i>	Long-eared Myotis	SC	S			Ponderosa pine or spruce-fir forests. Roost in rock outcroppings, tree cavities, under peeling bark, in stumps, caves, mines, sink holes, lava tubes, or

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						abandoned buildings. Elevation: < 10,000 feet
<i>Myotis occultus</i>	Arizona Myotis	SC	S			Ponderosa pine and oak-pine woodland near water. Also found along permanent water or in riparian forest in some desert areas along the lower Colorado and Verde rivers. Elevation: 2,400–9,200 feet
<i>Myotis thysanodes</i>	Fringed Myotis	SC	S			Middle elevation habitats including deserts, grasslands, and woodlands. Most frequently captured in oak-pinyon woodlands. Roost sites in caves, mine tunnels, large snags, under exfoliating bark, and in buildings. Elevation: 4,000–8,437 feet
<i>Myotis velifer</i>	Cave Myotis	SC	S			Desertscrub of creosote, brittlebush, palo verde, and cacti. Roost in caves, tunnels, and mineshafts and under bridges and sometimes in buildings within a few miles of water. Elevation: 300–5,000 feet
<i>Myotis volans</i>	Long-legged Myotis	SC	S			Primarily a coniferous forest bat, it may also be found in riparian and desert habitats. This species utilizes a variety of roosts including abandoned buildings, cracks in the ground, crevices in cliff faces, and spaces behind exfoliating tree bark. Elevation: 6,600–10,000 feet
<i>Nyctinomops macrotis</i>	Big Free-tailed Bat	SC	S			Rugged, rocky country and riparian areas. Roost in buildings, caves, and occasionally in holes in trees. Elevation: 1,810–8,475 feet
<i>Perognathus amplus cineris</i>	Wupatki Arizona Pocket Mouse	SC		S		Various types of desert scrub habitats. Also along scattered scrub oak in some areas. Elevation: 3,900–5,420 feet
PLANTS						
<i>Aconitum infectum</i>	Arizona Monkshood			S		San Francisco Peaks. Elevation: 9,500–11,000 feet
<i>Allium bigelovii</i>	Bigelow Onion				SR	Gentle slopes; open, dry rocky soil in grassland and open chaparral, and desertscrub communities. Elevation: 2,000–5,000 feet
<i>Aquilegia desertorum</i>	Mogollon Columbine				SR	Ledges and bluffs, in potholes and clefts of Kaibab limestone outcrops in ponderosa pine. Elevation: 5,000–7,500 feet
<i>Argemone arizonica</i>	Roaring Springs	SC				Steep, south-facing, unstable slopes and rock-slides in the

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
	Prickly-poppy					pinyon-juniper/ desertscrub community of the Supai Formation. Elevation: 6,000–7,000 feet
<i>Asclepias welshii</i>	Welsh's Milkweed	LT			HS	Open stabilized desertscrub dunes and lee side of active dunes. Elevation: varies
<i>Astragalus ampullarius</i>	Gumbo Milk-vetch	SC		S		Gumbo clay knolls derived from the Chinle shale formations. Elevation: 3,200–5,400 feet
<i>Astragalus cremnophylax</i> var. <i>cremnophylax</i>	Sentry Milk-vetch	LE			HS	Pinyon-juniper-cliffrose on a white layer of limestone. Elevation: > 4,000 feet
<i>Astragalus cremnophylax</i> var. <i>hevronii</i>	Marble Canyon Milk-vetch		S	S		Crevices of Kaibab limestone on exposed outcrops. Elevation: 5,200–5,400 feet
<i>Astragalus cremnophylax</i> var. <i>myriorrhaphis</i>	Cliff Milk-vetch	SC	S	S	SR	Grows in crevices and depressions with shallow soils (or no soil), on Kaibab Limestone on rim-rock benches, cliff ledges and flat-topped pinnacles at the canyon edge. Elevation: 6,200–7,900 feet
<i>Astragalus rusbyi</i>	Rusby's Milk-vetch			S		Openings or meadows in ponderosa pine forests or at the edges of thickets and aspen groves, on dry basaltic soils. Elevation: 5,400–8,000 feet
<i>Astragalus xiphoides</i>	Gladiator Milk Vetch	SC			SR	Grasslands and alluvial plains. Elevation: 5,000–6,000 feet
<i>Botrychium crenulatum</i>	Crenulate Moonwort	SC		S		Local in marshy or springy areas. In the San Francisco Peaks, usually in patches of bare gravelly soil in rocky terrain, among scattered spruce and fallen logs. Elevation: 10,000–11,000 feet
<i>Calypso bulbosa</i>	Western Fairy Slipper				SR	Cool understory of moist mixed conifer and subalpine forests with ponderosa pine, aspen, or spruce-fir, bogs, and along streams, in rich organic soil. Elevation: 8,000–10,000 feet
<i>Camissonia exilis</i>	Slender Evening-primrose	SC			SR	Warm desert shrub communities restricted to calcium-rich deposits on small islands of sandy-textured saline soil, apparently in association with subsurface seepage. Elevation: 3,500–5,000 feet
<i>Camissonia specuicola</i> ssp. <i>hesperia</i>	Grand Canyon Evening-primrose	SC				Scattered on open slopes and rock crevices, and found in washes and dry streambeds, often on limestone. Elevation:

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						1,240–4,500 feet
<i>Carex specuicola</i>	Navajo Sedge	LT			HS	Silty soils at shady seeps and springs. Elevation: 5,700–6,000 feet
<i>Castilleja kaibabensis</i>	Kaibab Paintbrush			S		Fine silts and clays to rocky gravelly meadow soils derived from weathered Kaibab limestone, on low rounded ridge tops and small knolls; populations occur in driest, most exposed sites in the open meadows. Elevation: 8,200–9,000 feet
<i>Chrysothamnus molestus</i>	Tusayan Rabbitbrush	SC		S		Typically found in open pinyon-juniper grasslands on slopes and flats where periodic fires naturally occur at an interval of every 15–30 years. Seldom found on steep hillsides. Elevation: 5,710–6,880 feet
<i>Cimicifuga arizonica</i>	Arizona Bugbane	SC CA		S	HS	Moist, loamy soil between coniferous and riparian ecotones. Elevation: 5,300–7,000 feet
<i>Cirsium parryi</i> ssp. <i>mogollonicum</i>	Mogollon Thistle	SC		S	SR	Moist to very moist soils in the shaded riparian understory of perennial streams. Elevation: 7,200 feet
<i>Coryphantha missouriensis</i>	Missouri Corycactus				SR	Plains, hills, desert edge, grasslands, lower mountains.
<i>Cymopterus megacephalus</i>	Cameron Water-parsley	SC		S		In Yavapai County, collected on Canotia hillsides with limey soil. Elevation: 4,440–5,170 feet
<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	Clustered Barrel Cactus				SR	Rocky flats and washes, bajadas, rock ledges, and rocky, gravelly slopes in the driest parts of the Sonoran and Mohave deserts. Elevation: 230–2,787 feet
<i>Echinocactus polycephalus</i> var. <i>Xeranthemoides</i>	Grand Canyon Cottontop Cactus				SR	Rocky hills, slopes, and ledges of canyons. Mostly south-facing ledges of canyons or on rocky hillsides in Navajoan Desert. Elevation: 1,803–6,479 feet
<i>Erigeron saxatilis</i>	Rock Fleabane			S		Sheer canyon walls, moist north-facing slopes, steep solid rock, and bedrock outcrops. Elevation: 4,400–8,350 feet
<i>Eriogonum ericifolium</i> var. <i>ericifolium</i>	Heathleaf Wild-buckwheat			S		Dry, gravelly to rocky slopes of lacustrine, in mixed grasslands, chaparral and oak-woodlands. Elevation: 2,950–6,300 feet
<i>Eriogonum ripleyi</i>	Ripley Wild-buckwheat	SC		S	SR	In Tertiary lakebeds on well-drained powdery soils derived from limestone, sandstone, or volcanic tuffs and ashes. Elevation: 2,000–6,000 feet
<i>Errazurizia rotundata</i>	Roundleaf Errazurizia		S		SR	Aromatic shrub growing in large soil-binding clumps in sandy



Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						areas. Elevation: 4,620–5,200 feet
<i>Ferocactus cylindraceus</i> var. <i>eastwoodiae</i>	Golden Barrel Cactus				SR	Gravelly or rocky hillsides, canyon walls, alluvial fans, and wash margins in the Mohave and Sonoran deserts on igneous and limestone substrates. Elevation: 200–2,900 feet
<i>Flaveria mcdougallii</i>	Grand Canyon Flaveria				SR	Located in hanging gardens or terrace ledges in perennial alkaline or saline seeps, in Muav Limestone and at Muav Limestone Bright Angel Shale interface. Elevation: 1,750–4,000 feet
<i>Gentianopsis barbellata</i>	Bearded Gentian			S		Covers wet rocky areas, meadows, and open woods of the tundra late in the season. Commonly found above timberline in Arizona among grass and rocks. Elevation: 10,000–12,000 feet
<i>Hedeoma diffusum</i>	Flagstaff Pennyroyal			S	SR	Rock pavement, cliff, limestone, and sandstone break habitats in the ponderosa pine vegetation type. Elevation: 4,500–7,140 feet
<i>Heuchera eastwoodiae</i>	Eastwood Alum Root			S		Found on moist, shaded slopes in ponderosa pine forests and canyons. Elevation: 3,480–7,874 feet
<i>Lesquerella kaibabensis</i>	Kaibab Bladderpod	SC		S		On limestone-clay knolls with a high percentage of exposed rock on the surface, within open windswept meadows. Elevation: 8,350–8,860 feet
<i>Listera convallarioides</i>	Broadleaf Twayblade				SR	Moist mixed deciduous/coniferous forests, growing in rich humus in open woods to boggy meadows, in pine and fir forests. Elevation: 7,000–8,600 feet
<i>Malaxis porphyrea</i>	Purple Adder's Mouth				SR	Mixed conifer forest. Most commonly found near slightly damp, mossy, or grassy places in slightly open forest areas. Elevation: 6,920–9,200 feet
<i>Opuntia basilaris</i> var. <i>aurea</i>	Yellow Beavertail				SR	Sand or sandy soils of flats, dunes, and valleys in woodland areas. Elevation: 1,200–2,100 feet
<i>Opuntia basilaris</i> var. <i>longiareolata</i>	Grand Canyon Beavertail Cactus				SR	Rocky soils at bases of talus slopes in the desert. Elevation: 2,000 feet
<i>Opuntia nicholii</i>	Navajo Bridge Cactus				SR	Gravelly soils of flats and low ridges in the desert.
<i>Pediocactus bradyi</i>	Brady Pincushion Cactus	LE			HS	Benches and terraces in Navajoan Desert near Marble Gorge. Elevation: 3,850–4,500 feet

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>Pediocactus paradinei</i>	Paradine (Kaibab) Plains Cactus	SC CA	S	S	HS	Pinyon-juniper woodland and shrub/grassland. Elevation: > 4,500 feet
<i>Pediocactus peeblesianus</i> var. <i>fickeiseniae</i>	Fickeisen Plains Cactus	C		S	HS	Exposed layers of Kaibab limestone on canyon margins or hills of Navajoan Desert. Elevation: 4,000–5,000 feet
<i>Pediocactus sileri</i>	Siler Pincushion Cactus	LT	S		HS	Desertscrub transitional areas of Navajo, sagebrush, and Mohave Deserts. Elevation: 2,800–5,400 feet
<i>Pediocactus simpsonii</i>	Simpson Plains Cactus				SR	Powdery soils of valleys, flats, and hillsides in dry areas; rocky soils of high valleys, mountainsides, grasslands.
<i>Penstemon clutei</i>	Sunset Crater Beardtongue	SC		S	SR	Found in cinder fields that are devoid of soil covering and where other herbaceous vegetation is sparse. Elevation: 6,100–8,500 feet
<i>Penstemon nudiflorus</i>	Flagstaff Beardtongue			S		Dry ponderosa pine ( <i>Pinus ponderosa</i> ) forests in mountainous regions south of the Grand Canyon. Elevation: 4,500–7,000 feet
<i>Phacelia serrata</i>	Cinder Phacelia	SC				Volcanic cinder areas associated with volcanic cones, but also roadcuts and abandoned quarries in open, exposed sunny locations. Elevation: 5,000–7,200 feet
<i>Phacelia welshii</i>	Welsh Phacelia	SC				Great Basin cold desert shrub communities, typically in the red shale outcrops of the Moenkopi Formation, along roadside edges and gravelly washes, but it has also been collected on black, sandy, volcanic ash. Elevation: 4,250–5,100 feet
<i>Pinus aristata</i>	Rocky Mountain Bristlecone Pine				SR	Subalpine forests. Forms a krummholz community with corkbark fir and Engelmann spruce on the San Francisco Peaks. Elevation: 9,500–12,000 feet
<i>Platanthera zothecina</i>	Alcove Bog-orchid	SC				Moist stream banks, seeps, and hanging gardens; requires constant moisture. Elevation: 5,000–9,000 feet
<i>Polemonium flavum</i>	Pinaleno Jacobs Ladder			S		White Mountains. Elevation: 7,500–9,000 feet
<i>Primula specuicola</i>	Grand Canyon Primrose				SR	Grows in moist sites from hanging gardens or alcoves. Elevation: 1,250–7,600 feet
<i>Psoralea thompsonae</i> var. <i>whitingii</i>	Whiting Indigo Bush	SC				Sandy-clay banks and talus, gravelly or sandy washes. Elevation: 3,800–5,000 feet

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>Puccinellia parishii</i>	Parish Alkali Grass	SC			HS	Open saline area below perennially flowing spring; moist soils with salty crust and without dense vegetative cover, downstream from willows that are present at the spring. Elevation: 2,780–7,350.
<i>Rosa stellata ssp. abyssa</i>	Grand Canyon Rose	SC	S	S	SR	On or near canyon rims or the tops of cliffs at the edges of mesas or plateaus, along low ledges at depressions caused by breccia pipes. Elevation: 4,500–7,540.
<i>Rumex orthoneurus</i>	Blumer's Dock	SC		S	HS	Mid- to high-elevation wetlands with moist, organic soil adjacent to perennial springs or streams in canyons or meadow situations. Elevation: 4,480–9,660 feet
<i>Sclerocactus parviflorus ssp. intermedius</i>	Intermediate Fishhook Cactus				SR	Often on rocky sandstone soils on hillsides with scattered pinyon and juniper, within pinyon-juniper woodland and sagebrush communities. Elevation: 5,900–7,500 feet
<i>Sclerocactus parviflorus ssp. parviflorus</i>	Smallflower Fishhook Cactus				SR	Often on rocky sandstone soils on hillsides with scattered pinyon and juniper, within pinyon-juniper woodland and sagebrush communities. Elevation: 5,900–7,500 feet
<i>Sclerocactus sileri</i>	House Rock Fishhook Cactus				SR	Sandstone to sandy soil of the Moenave, Chinle, and Navajo Formations; also silty sand or clay soils with a gravel component. Sometimes on mesas. Grama grassland to pinyon-juniper woodland communities. Elevation: 4,800–6,100 feet
<i>Senecio franciscanus</i>	San Francisco Peaks Groundsel	LT			HS	Alpine tundra. Elevation: > 10,900 feet
<i>Silene rectiramea</i>	Grand Canyon Catchfly	SC				Cold, dry climate. Elevation: 5,600–6,800 feet
<i>Talinum validulum</i>	Tusayan Flame Flower	SC			SR	Open mountain meadows with very shallow rocky clay soils derived from basalt in ponderosa pine forest, and shallow basins at rims of canyons and flat ridgetops with cherty gravels from Kaibab limestone in pinyon-juniper woodland. Elevation: 5,590–7,700 feet
<i>Thelypteris puberula</i> var. <i>sonorensis</i>	Aravaipa Wood Fern		S			In moist soil in the shade of boulders in mesic canyons. On river banks, seepage areas, and

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						meadow habitats. Elevation: 2,220–4,500 feet
<i>Triteleia lemmoniae</i>	Mazatzal Tritoleia				SR	Grows in sparse pine woodlands in partial shade of pines. Elevation: 3,200–7,680 feet
<i>Yucca whipplei</i>	Our Lords Candle				SR	Dry, grassy and often stony slopes. Elevation: < 4,000 feet
<i>Zigadenus virens</i>	Green Death Camas				SR	Montane coniferous forests. Elevation: 3,200–10,500 feet
REPTILES						
<i>Crotalus oreganus abyssus</i>	Grand Canyon Rattlesnake			S		Grassland, Great Basin Desert scrubland, bottoms in the Grand Canyon, rolling hills and bajadas in pinion-juniper woodland, and pine forests.
<i>Thamnophis eques megalops</i>	Northern Mexican Gartersnake	SC		S	WSC	Densely vegetated habitat surrounding cienegas, cienega-streams, and stock tanks and in or near water along streams in valley floors and generally open areas, but not in steep mountain canyon stream habitat. Elevation: 3,000–8,500 feet
<i>Thamnophis rufipunctatus</i>	Narrow-headed Gartersnake	SC		S	WSC	Pinyon-juniper and pine-oak woodland into ponderosa pine forest; in permanently flowing streams, sometimes sheltered by broadleaf deciduous trees. Elevation: 2,440–8,080 feet
Sources: AGFD 2008a and 2008b, AZNP 2008, Efloras 2008, NatureServe 2008, PFAF 1997, USFWS 2008a, USFS 2008b.						
Notes: C = Candidate; CA = Conservation Agreement ; LE = Listed Endangered; LT = Listed Threatened PDL = Proposed for Delisting; SC = Species of Concern; S = Sensitive; SR = Salvage Restricted; WSC = Wildlife of Special Concern in Arizona; HS = Highly Safeguarded						



Yavapai County

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
AMPHIBIANS						
<i>Bufo microscaphus</i>	Arizona Toad	SC		S		Rocky streams and canyons in the pine-oak belt. Also occurs in lower deserts, e.g., Agua Fria River area. Elevation: 480–8,400 feet
<i>Rana chiricahuensis</i>	Chiricahua Leopard Frog	LT		S	WSC	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs. Elevation: 3,300–8,900 feet
<i>Rana pipiens</i>	Northern Leopard Frog			S	WSC	Variety of habitats including grassland, brushland, woodland, and forest ranging high into mountains, usually in permanent waters with rooted aquatic vegetation; also frequents ponds, canals, marshes, springs, and streams. Elevation: 2,690–9,155 feet
<i>Rana yavapaiensis</i>	Lowland Leopard Frog	SC		S	WSC	Habitat generalists that breed in a variety of natural and man-made aquatic systems. Elevation: < 6,400 feet
BIRDS						
<i>Accipiter gentilis</i>	Northern Goshawk	SC		S	WSC	Breeds in high, forested mountains and plateaus statewide. Elevation 4,750–9,120 feet
<i>Athene cunicularia hypugaea</i>	Western Burrowing Owl	SC	S			Variable in open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands, often associated with burrowing mammals. Sometimes in open areas such as vacant lots near human habitation, golf courses, or airports. Elevation: 650–6,140 feet
<i>Buteo regalis</i>	Ferruginous Hawk	SC			WSC	Breeds in open areas with little topographic relief. Hunting areas are typically open grasslands, preferably those dotted with suitable low hills or short trees that serve as perches. Elevation: 3,500–6,000 feet
<i>Buteogallus anthracinus</i>	Common Black-Hawk			S	WSC	Obligate riparian nester, dependent on mature, relatively undisturbed habitat supported by a permanent flowing stream. Elevation 1,750–7,080 feet
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	C		S	WSC	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries). Elevation: < 6,500 feet
<i>Empidonax</i>	Southwestern	LE		S	WSC	Cottonwood/willow and tamarisk

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>traillii extimus</i>	Willow Flycatcher					vegetation communities along rivers and streams. Elevation: < 8,500 feet
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	SC		S	WSC	Steep, sheer cliffs overlooking woodlands, riparian areas, or other habitats supporting avian prey species in abundance. Elevation: < 9,000 feet
<i>Haliaeetus leucocephalus</i>	Bald Eagle	LT		S	WSC	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey. Elevation: varies
<i>Haliaeetus leucocephalus</i> (wintering pop.)	Bald Eagle	LT PDL		S	WSC	Wintering habitat will have an adequate food supply and open water such as river rapids, impoundments, dam spillways, lakes, and estuaries. Elevation: varies
<i>Megaceryle alcyon</i>	Belted Kingfisher				WSC	Rivers, brooks, ponds, lakes, coasts, streams, tidal creeks, mangroves, swamps, and estuaries. Elevation: 1,840–8,400 feet
<i>Pelecanus occidentalis californicus</i>	California Brown Pelican	PDL				Coastal land and islands; species found around many Arizona lakes and rivers. Elevation: varies
<i>Pinicola enucleator</i>	Pine Grosbeak				WSC	Open coniferous (less commonly mixed coniferous-deciduous) forest and forest edge; in migration and winter also in deciduous forest, woodland, second growth, and shrubbery. Elevation: 2,000–10,000 feet
<i>Rallus longirostris yumanensis</i>	Yuma Clapper Rail	LE			WSC	Breed in freshwater marshes; also inhabit brackish water marshes and side waters. Prefer the tallest, densest cattail and bulrush marshes. Elevation: 75–1,700 feet
<i>Setophaga ruticilla</i>	American Redstart				WSC	Breeding habitat is comprised of mature and second growth wooded habitats. Winter and migration habitats include various kinds of forests, woodlands, scrublands, and thickets, including mangroves. Elevation: 5,190–7,365 feet
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	LT		S	WSC	Nests in canyons and dense forests with multilayered foliage structure. Elevation: 4,100–9,000 feet
FISH						
<i>Agosia chrysogaster chrysogaster</i>	Gila Longfin Dace	SC	S			Intermittent hot low-desert streams to clear and cool brooks. Occupy relatively small- or

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						medium-size streams with sandy or gravely bottoms; eddies and pools near overhanging banks or other cover. Elevation: < 6,700 feet
<i>Catostomus clarki</i>	Desert Sucker	SC	S			Found in rapids and flowing pools of streams and rivers, primarily over bottoms of gravel-rubble with sandy silt in the interstices. Elevation: 480–8,840 feet
<i>Catostomus insignis</i>	Sonora Sucker	SC	S			Variety of habitats, from warm water rivers to trout streams. Elevation: 1,210–8,730 feet
<i>Cyprinodon macularius</i>	Desert Pupfish	LE			WSC	Shallow springs, small streams, and marshes. Tolerates saline and warm water. Elevation: < 5,000 feet
<i>Gila intermedia</i>	Gila Chub	LE		S	WSC	Pools, springs, cienegas, and streams. Elevation: 2,000–5,500 feet
<i>Gila nigra</i>	Headwater Chub	C				Small to medium-sized streams, often associated with deep pools and cover such as boulders or vegetation. Elevation: 3,300–6,700 feet
<i>Gila robusta</i>	Roundtail Chub	SC		S	WSC	Cool to warm water, mid-elevation streams and rivers where typical adult microhabitat consists of pools up to 6.5 feet deep adjacent to swifter riffles and runs. Cover is usually present. Elevation: 1,210–7,220 feet
<i>Meda fulgida</i>	Spikedace	LT		S	WSC	Moderate to large perennial streams with gravel cobble substrates and moderate to swift velocities over sand and gravel substrates. Recurrent flooding and natural hydrograph important. Elevation: < 6,000 feet
<i>Poeciliopsis occidentalis occidentalis</i>	Gila Topminnow	LE			WSC	Small streams, springs, and cienegas; vegetated shallows. Elevation: < 4,500 feet
<i>Ptychocheilus lucius</i>	Colorado Pikeminnow	LE XN			WSC	Warm, swift, turbid mainstem rivers. Prefers eddies and pools. Elevation: < 4,000 feet
<i>Rhinichthys osculus</i>	Speckled Dace	SC	S			Bottom dweller, found in rocky riffles, runs, and pools of headwaters, creeks, and small to medium rivers; rarely in lakes. Elevation: 1,550–8,920 feet
<i>Xyrauchen texanus</i>	Razorback Sucker	LE		S		Riverine and lacustrine areas, generally not in fast-moving water, may use backwaters. Elevation: < 6,000 feet

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
INVERTEBRATES						
<i>Cicindela oregona maricopa</i>	Maricopa Tiger Beetle	SC		S		Sandy stream banks and less commonly on gravels and clays along streambanks. May occur near seeps or reservoir banks. Elevation: 1,092–6,940 feet
<i>Cylloepus parkeri</i>	Parker's Cylloepus Riffle Beetle	SC	S			Permanent, clean, slow-moving small streams, with loose gravelly substrate and very little sand. Elevation: 2,850–4,000 feet
<i>Metrichia nigrutta</i>	Page Spring Micro Caddisfly	SC				Filamentous algae and moss. Elevation: 3,500 feet
<i>Protophila balmorea</i>	Balmorea Saddle-case Caddisfly	SC				Swift spring outfalls with sufficient cobble substrate to support the algal grazing habits of the larvae. Elevation: 3,500 feet
<i>Pyrgulopsis glandulosa</i>	Verde Rim Springsnail	SC	S	S		Freshwater, bethnic, spring-spingsbrook. Elevation: 5,280 feet
<i>Pyrgulopsis montezumensis</i>	Montezuma Well Springsnail	SC	S	S		Freshwater, bethnic, spring. Elevation: 3,600 feet
<i>Pyrgulopsis morrisoni</i>	Page Springsnail	C	S	S		Aquatic, slow, or still freshwater, usually head springs and upper section of outflows. Elevation: 3,300–3,600 feet
<i>Pyrgulopsis simplex</i>	Fossil Springsnail	SC	S	S		Found on rock or aquatic macrophytes in moderate current. Elevation: 4,140–4,310 feet
<i>Pyrgulopsis sola</i>	Brown Springsnail	SC				Endemic to type locality of Brown Spring. Elevation: 3,160–5,600 feet
MAMMALS						
<i>Corynorhinus townsendii pallescens</i>	Pale Townsend's Big-eared Bat	SC				Summer day roosts are found in caves and mines from desertscrub up to woodlands and coniferous forests. Night roosts may often be in abandoned buildings. Elevation: 550–8,437 feet
<i>Euderma maculatum</i>	Spotted Bat	SC			WSC	Varied. Found from low desert in southwestern Arizona to high desert and riparian habitats in northwestern Arizona and Utah, and conifer forests in northern Arizona and other western states. Elevation: varies
<i>Idionycteris phyllotis</i>	Allen's Big-eared Bat	SC	S			Ponderosa pine, pinyon-juniper, Mexican woodland, and riparian areas of sycamores, cottonwoods, and willows. Roosts in caves and abandoned mineshafts. Elevation: 1,320–9,800 feet



Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>Lasiurus blossevillei</i>	Western Red Bat				WSC	Riparian and other wooded areas. Roosts by day in trees. Summer roosts usually in tree foliage, sometimes in leafy shrubs or herbs. Often found in trees of fruit orchards. May also roost in saguaro boots and occasionally in cave-like situations. Elevation: 1,900–3,700 feet
<i>Macrotus californicus</i>	California Leaf-nosed Bat	SC			WSC	Sonoran desertscrub; primary summer and winter range essentially the same; primarily roost in mines, caves, and rock shelters. Elevation: < 4,000 feet
<i>Microtus mexicanus hualpaiensis</i>	Hualapai Mexican Vole	LE			WSC	Primarily associated with dry grass/forb habitats in ponderosa pine-dominated forest. Elevation: 3,000–8,400 feet
<i>Myotis cillolabrum</i>	Western Small-footed Myotis	SC	S			Generally inhabits desert, chaparral, western coniferous forest, badland, and semiarid habitats, more mesic habitats in southern part of range. Rely heavily on mines for hibernation. Elevation: 2,120–8,670 feet
<i>Myotis occultus</i>	Arizona Myotis	SC	S			Ponderosa pine and oak-pine woodland near water. Also found along permanent water or in riparian forest in some desert areas along the lower Colorado and Verde rivers. Elevation: 2,400–9,200 feet
<i>Myotis thysanodes</i>	Fringed Myotis	SC	S			Middle elevation habitats ranging from deserts, grasslands, and woodlands. Most frequently captured in oak-pinyon woodlands. Roost sites in caves, mine tunnels, in large snags, under exfoliating bark, and in buildings. Elevation: 4,000–8,437 feet
<i>Myotis velifer</i>	Cave Myotis	SC	S			Desertscrub of creosote, brittlebush, palo verde, and cacti. Roost in caves, tunnels, and mineshafts and under bridges and sometimes in buildings within a few miles of water. Elevation: 300–5,000 feet
<i>Myotis volans</i>	Long-legged Myotis	SC	S			Primarily a coniferous forest bat, it may also be found in riparian and desert habitats. This species utilizes a variety of roosts including abandoned buildings, cracks in the ground, crevices in cliff faces, and spaces behind

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						exfoliating tree bark. Elevation: 6,600–10,000 feet
<i>Nyctinomops femorosaccus</i>	Pocketed Free-tailed Bat		S			Arid lower elevations, usually around high cliffs and rugged rock outcrops. Roosts in rock crevices during the day; may also use human-built structures. Elevation: 190–7,520 feet
<i>Nyctinomops macrotis</i>	Big Free-tailed Bat	SC	S			Rugged, rocky country and riparian areas. Roost in buildings, caves, and, occasionally, in holes in trees. Elevation: 1,810–8,475 feet
<i>Sigmodon arizonae arizonae</i>	Camp Verde Cotton Rat				WSC	Desert areas characterized by mesquite and tumbleweeds with a small amount of grass. Less arid areas along canals and banks of small streams with weeds and brush. Elevation: 3,200 feet
PLANTS						
<i>Abutilon parishii</i>	Pima Indian Mallow	SC	S	S	SR	Sonoran desertscrub on rocky hillsides, cliff bases, canyon bottoms, lower side slopes, and ledges of canyons among rocks and boulders. Elevation: 1,700–4,900 feet
<i>Agave arizonica</i>	Arizona Agave				HS	Open, rocky slopes and mesas in Sonoran desertscrub, chaparral, or juniper grassland. Elevation: 3,600–5,800 feet
<i>Agave delamateri</i>	Tonto Basin Agave	SC		S	HS	Found atop benches at edges of slopes and on open hilly slopes in desert scrub overlooking major drainages and perennial streams. Elevation: 2,190–5,100 feet
<i>Agave mckelveyana</i>	McKelvey's Agave				SR	Sandy to gravelly or rocky places with desert scrub, chaparral, and pinyon-juniper woodlands. Elevation: 2,600–7,200 feet
<i>Agave murpheyi</i>	Hohokam Agave	SC	S	S	HS	Benches or alluvial terraces on gentle bajada slopes (not steep slopes or drainage bottoms) above major drainages in desert scrub. Elevation: 1,300–3,200 feet
<i>Agave toumeyana</i> var. <i>bella</i>	Toumey Agave				SR	Open gravelly to rocky limestone or basalt slopes, mostly with desert scrub, chaparral, and pinyon-juniper woodlands. Elevation: 2,600–5,600 feet
<i>Allium bigelovii</i>	Bigelow Onion				SR	Gentle slopes; open, dry rocky soil in grassland, open chaparral, and desertscrub communities. Elevation: 2,000–5,000 feet
<i>Arenaria aberrans</i>	Mt. Dellenbaugh			S		Occurs mainly in oak and pine forests. Also found in open pine

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
	Sandwort					and pine-pinyon woodlands and among junipers. Elevation: 5,500–9,000 feet
<i>Astragalus newberryi</i> var. <i>aquarii</i>	Aquarius Milkvetch		S			Seraphic islands that do not support Sonoran Desert dominants such as creosote bush and foothill paloverde. Elevation: 2,000–2,600 feet
<i>Carex ultra</i>	Arizona Giant Sedge		S	S		Moist soil near perennially wet springs and streams; undulating rocky-gravelly terrain. Elevation: 2,040–6,000 feet
<i>Cymopterus megacephalus</i>	Cameron Water-parsley	SC		S		In Yavapai County, collected on Canotia hillsides with limey soil. Elevation: 4,440–5,170 feet
<i>Erigeron saxatilis</i>	Rock Fleabane			S		Sheer canyon walls, moist north-facing slopes, steep solid rock and bedrock outcrops. Elevation: 4,400–8,350 feet
<i>Eriogonum ericifolium</i> var. <i>ericifolium</i>	Heathleaf Wild-buckwheat			S		Dry, gravelly to rocky slopes of lacustrine, in mixed grasslands, chaparral and oak-woodlands. Elevation: 2,950–6,300 feet
<i>Eriogonum ripleyi</i>	Ripley Wild-buckwheat	SC		S	SR	In Tertiary lakebeds on well-drained powdery soils derived from limestone, sandstone, or volcanic tuffs and ashes. Elevation: 2,000–6,000 feet
<i>Escobaria vivipara</i> var. <i>rosea</i>	Viviparous Foxtail Cactus				SR	Dry, rocky limestone slopes, volcanic hills, and gravelly areas in woodland or desert mountains. Elevation: 4,918–9,000 feet
<i>Ferocactus cylindraceus</i> var. <i>eastwoodiae</i>	Golden Barrel Cactus				SR	Gravelly or rocky hillsides, canyon walls, alluvial fans, and wash margins in the Mohave and Sonoran deserts, on igneous and limestone substrates. Elevation: 200–2,900 feet
<i>Fremontodendron californicum</i>	Flannel Bush		S		SR	Well-drained rocky hillsides and ridges, in chaparral and oak-pine woodland. Elevation: 3,500–6,500 feet
<i>Hedeoma diffusum</i>	Flagstaff Pennyroyal			S	SR	Rock pavement, cliff, limestone, and sandstone break habitats in the ponderosa pine vegetation type. Elevation: 4,500–7,140 feet
<i>Heuchera eastwoodiae</i>	Eastwood Alum Root			S		Found on moist, shaded slopes in ponderosa pine forests and canyons. Elevation: 3,480–7,874 feet
<i>Hexalectris spicata</i>	Crested Coral Root				SR	Oak woodlands, on the wooded sides of canyons, and on canyon bottoms. Elevation: 3,480–6,950.
<i>Lupinus latifolius</i> ssp. <i>leucanthus</i>	Broadleaf Lupine			S		Streams and moist soil of dry stream beds in oak-cottonwood, mixed shrub, and ponderosa pine

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						forest communities. Elevation: 4,800–7,000 feet
<i>Mammillaria viridiflora</i>	Varied Fishhook Cactus				SR	Semidesert grasslands, interior chaparral, pinyon-juniper and oak woodlands, crevices, boulders, canyon sides, and gravelly igneous substrates. Elevation: 4,500–6,500 feet
<i>Penstemon nudiflorus</i>	Flagstaff Beardtongue			S		Dry ponderosa pine ( <i>Pinus ponderosa</i> ) forests in mountainous regions south of the Grand Canyon. Elevation: 4,500–7,000 feet
<i>Phlox amabilis</i>	Arizona Phlox			S		Open exposed limestone-rocky slopes within pinyon-juniper woodlands and ponderosa pine-gambel oak communities. Elevation: 3,500–7,800 feet
<i>Polygala rusbyi</i>	Hualapai Milkwort			S		Peach springs to Kingman (Mohave County), also Yavapai County, April to July, type from near Prescott. Known only from central AZ
<i>Puccinellia parishii</i>	Parish Alkali Grass	SC			HS	Open saline area below perennially flowing spring; moist soils with salty crust and without dense vegetative cover, downstream from willows that are present at the spring. Elevation: 2,780–7,350.
<i>Purshia subintegra</i>	Arizona Cliffrose	LE				White limestone soils derived from tertiary lakebed deposits. Elevation: < 4,000 feet
<i>Salvia dorrii</i> ssp. <i>mearnsii</i>	Verde Valley Sage	SC		S	SR	Restricted to open creosotebush shrub community on gypseous limestone. Elevation: 3,120–5,120 feet
<i>Talinum validulum</i>	Tusayan Flame Flower	SC			SR	Open mountain meadows with very shallow rocky clay soils derived from basalt in ponderosa pine forest and shallow basins at rims of canyons and flat ridgetops with cherty gravels from Kaibab limestone in pinyon-juniper woodland. Elevation: 5,590–7,700 feet
<i>Thelypteris puberula</i> var. <i>sonorensis</i>	Aravaipa Wood Fern		S			In moist soil in the shade of boulders in mesic canyons. On riverbanks, seepage areas, and meadow habitats. Elevation: 2,220–4,500 feet
<i>Triteleia lemmoniae</i>	Mazatzal Tritileia				SR	Grows in sparse pine woodlands in partial shade of pines. Elevation: 3,200–7,680 feet
<i>Washingtonia filifera</i>	California Fan Palm				SR	Native to desert washes, seeps, and springs where underground



Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						water is continuously available. Elevation: 300–4,000 feet
REPTILES						
<i>Charina trivirgata gracia</i>	Desert Rosy Boa	SC	S	S		Rocky areas in desert ranges, especially in canyons with permanent or intermittent streams. Basalt, granite soils. Elevation: < 5,000 feet
<i>Gopherus agassizii</i> (Sonoran Population)	Sonoran Desert Tortoise	SC			WSC	Rocky slopes and bajadas of Mojave and Sonoran deserts scrub. Elevation: 510–5,300 feet
<i>Heloderma suspectum cinctum</i>	Banded Gila Monster	SC	S			Sonoran Desert and extreme western edge of Mohave Desert, less frequent in desert-grassland and rare in oak woodland. Elevation: < 5,000 feet
<i>Thamnophis eques megalops</i>	Northern Mexican Gartersnake	SC		S	WSC	Densely vegetated habitat surrounding cienegas, cienega-streams, and stock tanks and in or near water along streams in valley floors and generally open areas, but not in steep mountain canyon stream habitat. Elevation: 3,000–8,500 feet
<i>Thamnophis rufipunctatus</i>	Narrow-headed Gartersnake	SC		S	WSC	Pinyon-juniper and pine-oak woodland into ponderosa pine forest; in permanently flowing streams, sometimes sheltered by broadleaf deciduous trees. Elevation: 2,440–8,080 feet
<i>Xantusia arizonae</i>	Arizona Night Lizard			S		Arid and semiarid granite outcroppings and rocky areas, among fallen leaves, trunks of agaves, rocks, or under vegetative debris. Elevation: 3,000–3,800 feet
Sources: AGFD 2008a and 2008b, AZNP 2008, Efloras 2008, NatureServe 2008, PFAF 1997, USFWS 2008b, USFS 2008b.						
Notes: C = Candidate; CA = Conservation Agreement; LE = Listed Endangered; LT = Listed Threatened; PDL = Proposed for Delisting; SC = Species of Concern; S = Sensitive; SR = Salvage Restricted; WSC = Wildlife of Special Concern in Arizona; HS = Highly Safeguarded						

## Navajo-Hopi Focus Area

The Navajo-Hopi Focus Area is located in the northeastern portion of Arizona and primarily consists of Navajo Nation and Hopi Tribal land. Land protected by the federal government through national parks, monuments, or forests is minimal (Figure 2-4b).

This region is supported by four biotic communities. From approximately 4,000 feet to 6,000 feet is Great Basin Desertscrub, characterized by cold-adapted sagebrush and saltbush. The Plains and Great Basin Grassland begins at approximately 5,000 feet and reaches to 7,000 feet. This is flat and open country, with high winds, that is dominated by grasses. Woodlands at elevations of 4,000 feet to 6,000 feet, dominated by pinyon and juniper, make up the Great Basin Conifer Woodland. Beginning where pinyon and juniper begin to fade is the Montane Conifer Forest, reaching as high as approximately 9,000 feet. Dominant trees in the mountains within the Montane Conifer Forest are ponderosa pine at the lower elevations and Douglas fir and Aspen at the higher elevations.

When large areas of land in Arizona are considered, a great deal of habitat diversity is evident. The same is true of the wildlife species living in these habitats. To help protect these species, groups and coalitions have generated data representing critical areas to wildlife survival throughout Arizona to aid in planning future development. These areas are represented in Figure 2-4b.

## Sensitive Biological Lands

Sensitive Biological Lands are important to the preservation of wildlife species in Arizona. They encompass both protected and unprotected habitats that wildlife relies on for survival. They consist of Priority Conservation Areas, Priority Grasslands, and Wildlife Linkages across Arizona.

### Priority Conservation Areas (Nature Conservancy)

These lands and waters have been identified by the Nature Conservancy as being critical to the conservation of biodiversity in Arizona. Knowledge of these areas can be used to prioritize conservation activities, understand regional significance of a local site, and evaluate activities that may adversely affect conservation values. Identified areas within the Navajo-Hopi Focus Area are:

- Puerco River
- Petrified Forest
- Marcou Mesa
- Klagehoh North
- Defiance Plateau
- Cottonwood/Black Mountain Washes
- Upper Black Mesa
- Shonto Plateau
- Little Capitan Valley
- Chinle Creek
- Carrizo/Lukachukai Front



# Regional Framework Study: Northern Arizona, Navajo-Hopi Focus Area

PRELIMINARY  
DRAFT

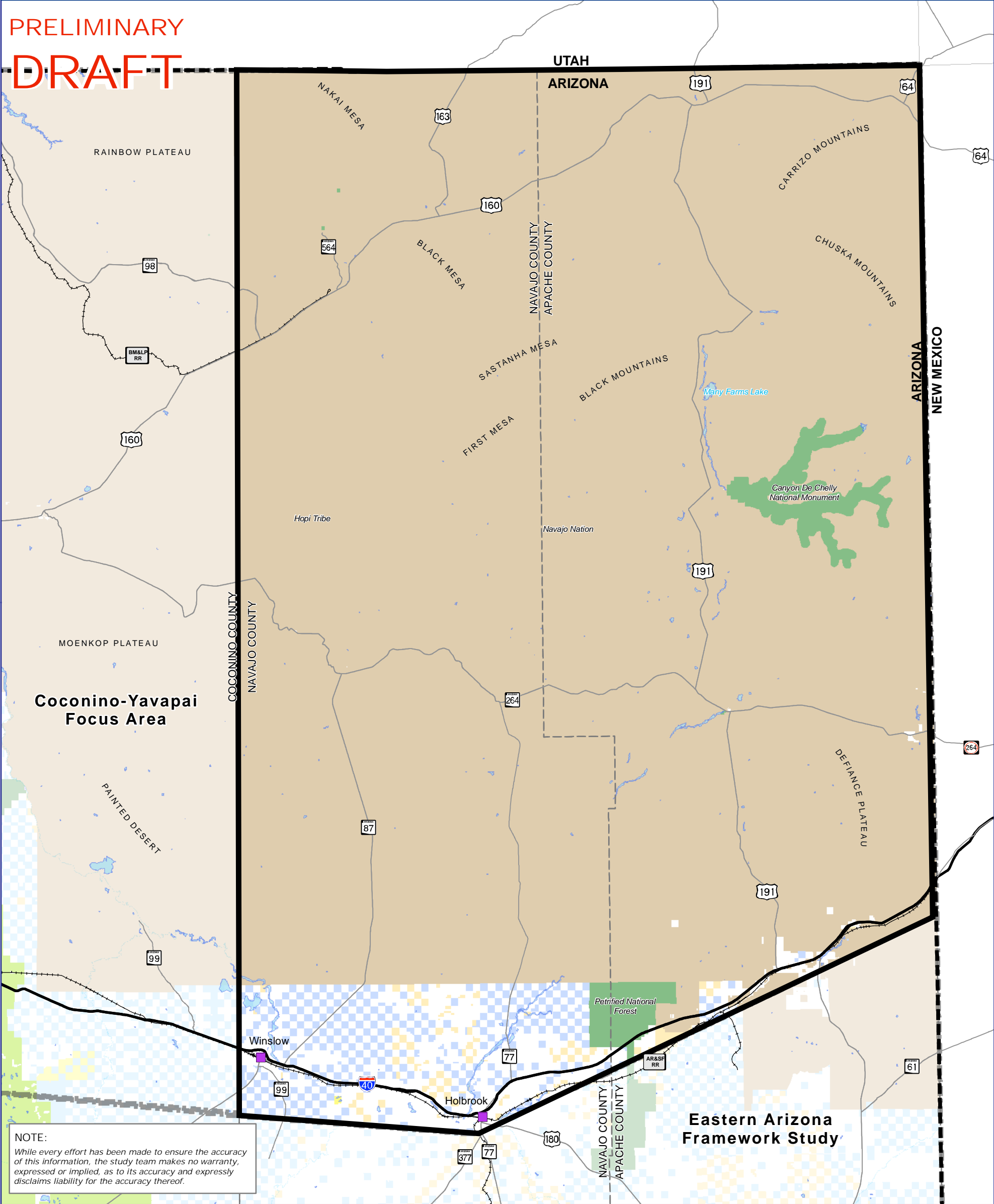


Figure 2-4b Land Ownership and Protected Environmental Areas

Legend

- City/Town
- Interstate
- Highway
- Railroad
- River
- Lake
- County Boundary
- State Boundary

Framework Study Boundary

Focus Area Boundary

Land Ownership

- BLM
- Tribal Community
- National Park Service

Private

State Trust Land

State Wildlife Area

### Priority Grasslands (Nature Conservancy)

These grasslands were identified as the result of a 2-year study by the Nature Conservancy to delineate grasslands and evaluate their ecological condition in Arizona. Grasslands within the Navajo-Hopi Focus Area are:

- Transition grasslands; < 5% canopy cover of perennial grasses and/or severe soil erosion problems
- Unknown grassland condition
- Undetermined; no survey data available for verification

### Wildlife Linkages (Arizona Wildlife Linkages Workgroup)

Wildlife linkages are areas designated by the Arizona Wildlife Linkages Workgroup to be crucial to connecting wildlife habitats. These habitats span roads, railroads, fences, canals, and urban development throughout Arizona. The non-binding recommendations can be used as an informational resource for planners and engineers to consider while developing land use plans. Wildlife linkages within the Navajo-Hopi Focus Area are:

- Skeleton Mesa-Black Mesa
- Chuska Mountains-New Mexico
- Chinle Valley-Chuska Mountains
- Mogollon Rim-Navajo Nation

Table 2.2 Listed Species – Known or Potentially Occurring

#### Navajo County

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
AMPHIBIANS						
<i>Bufo microscaphus</i>	Arizona Toad	SC		S		Rocky streams and canyons in the pine-oak belt. Also occurs in lower deserts, e.g., Agua Fria River area. Elevation: 480–8,400 feet
<i>Rana chiricahuensis</i>	Chiricahua Leopard Frog	LT		S	WSC	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs. Elevation: 3,300–8,900 feet
<i>Rana pipiens</i>	Northern Leopard Frog			S	WSC	Variety of habitats including grassland, brushland, woodland, and forest ranging high into mountains, usually in permanent waters with rooted aquatic vegetation; also frequents ponds, canals, marshes, springs, and streams. Elevation: 2,690–9,155 feet
BIRDS						
<i>Accipiter gentilis</i>	Northern Goshawk	SC		S	WSC	Breeds in high, forested mountains and plateaus statewide. Elevation: 4,750–9,120 feet
<i>Athene</i>	Western	SC	S			Variable in open, well-drained

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>Cunicularia hypugaea</i>	Burrowing Owl					grasslands, steppes, deserts, prairies, and agricultural lands, often associated with burrowing mammals. Sometimes in open areas such as vacant lots near human habitation, golf courses, or airports. Elevation: 650–6,140 feet
<i>Buteo regalis</i>	Ferruginous Hawk	SC			WSC	Breeds in open areas with little topographic relief. Hunting areas are typically open grasslands, preferably those dotted with suitable low hills or short trees that serve as perches. Elevation: 3,500–6,000 feet
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	C		S	WSC	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries). Elevation: < 6,500 feet
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	LE		S	WSC	Cottonwood/willow and tamarisk vegetation communities along rivers and streams. Elevation: < 8,500 feet
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	SC		S	WSC	Steep, sheer cliffs overlooking woodlands, riparian areas, or other habitats supporting avian prey species in abundance. Elevation: < 9,000 feet
<i>Gymnogyps californianus</i>	California Condor	LE				High desert canyonlands and plateaus. Elevation: varies
<i>Haliaeetus leucocephalus</i> (wintering pop.)	Bald Eagle	LT PDL		S	WSC	Wintering habitat will have an adequate food supply and open water such as river rapids, impoundments, dam spillways, lakes, and estuaries. Elevation: varies
<i>Pandion haliaetus</i>	Osprey				WSC	Nests in coniferous trees, alongside or near rivers and lakes in the White Mountains and across the Mogollon Plateau. Elevation: 6,000–7,800 feet
<i>Pelecanus occidentalis californicus</i>	California Brown Pelican	PDL				Coastal land and islands; species found around many Arizona lakes and rivers. Elevation: varies
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	LT		S	WSC	Nests in canyons and dense forests with multilayered foliage structure. Elevation: 4,100–9,000 feet
FISH						
<i>Agosia chrysogaster chrysogaster</i>	Gila Longfin Dace	SC	S			Intermittent hot low-desert streams to clear and cool brooks. Occupy relatively small or medium size streams with sandy or gravely bottoms, eddies, pools



Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						near overhanging banks or other cover. Elevation: < 6,700 feet
<i>Catostomus clarki</i>	Desert Sucker	SC	S			Found in rapids and flowing pools of streams and rivers primarily over bottoms of gravel-rubble with sandy silt in the interstices. Elevation: 480–8,840 feet
<i>Catostomus</i> sp. 3	Little Colorado Sucker	SC		S	WSC	In creeks, small to medium rivers, and impoundments. Predominantly found in pools with abundant cover. Also found in riffles. Elevation: 2,200–7,100 feet
<i>Gila robusta</i>	Roundtail Chub	SC		S	WSC	Cool to warm water, mid-elevation streams and rivers where typical adult microhabitat consists of pools up to 6.5 feet deep adjacent to swifter riffles and runs. Cover is usually present. Elevation: 1,210–7,220 feet
<i>Lepidomeda vittata</i>	Little Colorado Spinedace	LT		S	WSC	Moderate to small streams in pools and riffles with water flowing over gravel and silt. Elevation: 4,000–8,000 feet
<i>Meda fulgida</i>	Spikedace	LT				Moderate to large perennial streams with gravel cobble substrates and moderate to swift velocities over sand and gravel substrates. Recurrent flooding and natural hydrograph important. Elevation: < 6,000 feet
<i>Oncorhynchus apache</i>	Apache Trout	LT				Presently restricted to cold mountain streams with many low gradient meadow reaches. Elevation: > 5,000 feet
<i>Rhinichthys osculus</i>	Speckled Dace	SC	S			Bottom dweller, found in rocky riffles, runs, and pools of headwaters, creeks, and small to medium rivers; rarely in lakes. Elevation: 1,550–8,920 feet
<i>Tiaroga cobitis</i>	Loach Minnow	LT				Benthic species of small to large perennial streams with swift shallow water over cobble and gravel. Recurrent flooding and natural hydrograph important. Elevation: < 8,000 feet
INVERTEBRATES						
<i>Anodonta californiensis</i>	California Floater	SC		S		Shallow areas less than 6 feet deep in unpolluted lakes, reservoirs, and perennial streams. Adult mussels typically live in mud or sand and juveniles in loose sand. Elevation: 4,000–8,670 feet

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>Cicindela oregona maricopa</i>	Maricopa Tiger Beetle	SC	S	S		Sandy stream banks and less commonly on gravels and clays along streambanks. May occur near seeps or reservoir banks. Elevation: 1,092–6,940 feet
MAMMALS						
<i>Corynorhinus townsendii pallescens</i>	Pale Townsend's Big-eared Bat	SC				Summer day roosts are found in caves and mines from desertscrub up to woodlands and coniferous forests. Night roosts may often be in abandoned buildings. Elevation: 550–8,437 feet
<i>Idionycteris phyllotis</i>	Allen's Big-eared Bat	SC	S			Ponderosa pine, pinyon-juniper, Mexican woodland, and riparian areas of sycamores, cottonwoods, and willows. Roosts in caves and abandoned mineshafts. Elevation: 1,320–9,800 feet
<i>Microtus mexicanus navaho</i>	Navajo Mexican Vole	SC		S	WSC	Occupies prostrate thickets of a variety of shrubs that provide dense cover, in areas of high litter and bare ground. Also dry, grassy areas, usually adjacent to ponderosa pine forests, but sometimes as low as juniper woodland or stands of sagebrush. Elevation: 3,800–9,700 feet
<i>Mustela nigripes</i>	Black-footed Ferret	LE				Grassland plains generally found in association with prairie dogs. Elevation: < 10,500 feet
<i>Myotis evotis</i>	Long-eared Myotis	SC	S			Ponderosa pine or spruce-fir forests. Roost in rock outcroppings, tree cavities, under peeling bark, in stumps, caves, mines, sink holes, lava tubes, or in abandoned buildings. Elevation: < 10,000 feet
<i>Myotis occultus</i>	Arizona Myotis	SC	S			Ponderosa pine and oak-pine woodland near water. Also found along permanent water or in riparian forest in some desert areas along the lower Colorado and Verde rivers. Elevation: 2,400–9,200 feet
<i>Myotis thysanodes</i>	Fringed Myotis	SC	S			Middle elevation habitats ranging from deserts, grasslands, and woodlands. Most frequently captured in oak-pinyon woodlands. Roost sites in caves, mine tunnels, in large snags, under exfoliating bark, and in buildings. Elevation: 4,000–8,437 feet
<i>Myotis volans</i>	Long-legged	SC	S			Primarily a coniferous forest bat,

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
	Myotis					it may also be found in riparian and desert habitats. This species utilizes a variety of roosts including abandoned buildings, cracks in the ground, crevices in cliff faces, and spaces behind exfoliating tree bark. Elevation: 6,600–10,000 feet
<i>Panthera onca</i>	Jaguar	LE		S	WSC	Desert scrub to pine-oak woodland in Arizona. Elevation: 5,200–5,700 feet
<i>Perognathus flavus goodpasteri</i>	Springerville Pocket Mouse	SC				Prairies of sandy, gravelly, or rocky areas with sparse vegetation of various grasses and forbs. Plains-like short grassland that is interspersed with volcanic rock just to the north of Springerville. Elevation: 5,240–7,020 feet
PLANTS						
<i>Asclepias welshii</i>	Welsh's Milkweed	LT			HS	Open stabilized desert scrub dunes and lee side of active dunes. Elevation: varies
<i>Astragalus xiphoides</i>	Gladiator Milk Vetch	SC			SR	Grasslands and alluvial plains. Elevation: 5,000–6,000 feet
<i>Carex specuicola</i>	Navajo Sedge	LT			HS	Silty soils at shady seeps and springs. Elevation: 5,700–6,000 feet
<i>Chrysothamnus molestus</i>	Tusayan Rabbitbrush	SC		S		Typically found in open pinyon-juniper grasslands on slopes and flats, where periodic fires naturally occur at an interval of every 15–30 years. Seldom found on steep hillsides. Elevation: 5,710–6,880 feet
<i>Errazurizia rotundata</i>	Roundleaf Errazurizia		S		SR	Aromatic shrub growing in large soil-binding clumps in sandy areas. Elevation: 4,620–5,200 feet
<i>Pediocactus papyracanthus</i>	Paper-spined Cactus	SC			SR	Open flats in grasslands and pinyon-juniper woodlands. Elevation: 5,060–6,520 feet
<i>Pediocactus peeblesianus</i> var. <i>peeblesianus</i>	Peebles Navajo Cactus	LE			HS	Gravelly soils of the shinarump conglomerate of the Chinle Formation. Elevation: 5,400–5,600 feet
<i>Penstemon nudiflorus</i>	Flagstaff Beardtongue			S		Dry ponderosa pine ( <i>Pinus ponderosa</i> ) forests in mountainous regions south of the Grand Canyon. Elevation: 4,500–7,000 feet
REPTILES						
<i>Thamnophis eques megalops</i>	Northern Mexican Gartersnake	SC		S	WSC	Densely vegetated habitat surrounding cienegas, cienega-streams, and stock tanks and in or near water along streams in

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
						valley floors and generally open areas, but not in steep mountain canyon stream habitat. Elevation: 3,000–8,500 feet
<i>Thamnophis rufipunctatus</i>	Narrow-headed Gartersnake	SC		S	WSC	Pinyon-juniper and pine-oak woodland into ponderosa pine forest; in permanently flowing streams, sometimes sheltered by broadleaf deciduous trees. Elevation: 2,440–8,080 feet
Sources: AGFD 2008a and 2008b, AZNP 2008, Efloras 2008, NatureServe 2008, PFAF 1997, USFWS 2008c, USFS 2008b. Notes: C = Candidate; CA = Conservation Agreement; LE = Listed Endangered; LT = Listed Threatened ; DL = Proposed for Delisting; SC = Species of Concern; S = Sensitive; SR = Salvage Restricted; WSC = Wildlife of Special Concern in Arizona; HS = Highly Safeguarded						

Apache County

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
AMPHIBIANS						
<i>Bufo microscaphus</i>	Arizona Toad	SC		S		Rocky streams and canyons in the pine-oak belt. Also occurs in lower deserts, e.g., Agua Fria River area. Elevation: 480–8,400 feet
<i>Rana chiricahuensis</i>	Chiricahua Leopard Frog	LT		S	WSC	Streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs. Elevation: 3,300–8,900 feet
<i>Rana pipiens</i>	Northern Leopard Frog			S	WSC	Variety of habitats including grassland, brushland, woodland, and forest ranging high into mountains, usually in permanent waters with rooted aquatic vegetation; also frequents ponds, canals, marshes, springs, and streams. Elevation: 2,690–9,155 feet
<i>Rana yavapaiensis</i>	Lowland Leopard Frog	SC		S	WSC	Habitat generalists that breed in a variety of natural and man-made aquatic systems. Elevation: < 6,400 feet
BIRDS						
<i>Accipiter gentilis</i>	Northern Goshawk	SC		S	WSC	Breeds in high, forested mountains and plateaus statewide. Elevation: 4,750–9,120 feet
<i>Athene cunicularia hypugaea</i>	Western Burrowing Owl	SC	S			Variable in open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands, often associated with burrowing mammals. Sometimes in open areas such as vacant lots near human habitation, golf courses, or airports. Elevation: 650–6,140 feet

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>Catharus fuscescens</i>	Veery				WSC	Breed irregularly in restricted riparian habitats in the willow-dogwood association. Inhabit low, moist, deciduous woods, bottomland forests, wooded swamps, and damp ravines; prefer sapling stands of deciduous second-growth or open woods with fairly dense undergrowth of ferns, shrubs, and trees. Elevation: 7,375 feet
<i>Charadrius montanus</i>	Mountain Plover	SC	S	S		Frequent xeric or disturbed uplands; rarely found near water. They are considered to be strongly associated with sites of heaviest grazing pressure, to the point of excessive surface disturbance. Short vegetation, bare ground, and a flat topography are now recognized as habitat-defining characteristics at both breeding and wintering locales. Elevation: 3,000–8,000 feet
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	C		S	WSC	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries). Elevation: < 6,500 feet
<i>Dolichonyx oryzivorus</i>	Bobolink				WSC	Herbaceous wetland, cropland-hedgerow, grassland-herbaceous. Breed in open grassland, preferring moist, lush areas. Elevation: 4,840–7,020 feet
<i>Dumetella carolinensis</i>	Gray Catbird				WSC	Ponderosa pine forest; pinyon-juniper forests. Dry, shallow, rocky soils of mesas, benches, and canyon walls; and nonforest habitats found in river areas, riparian woodlands, and subalpine marshes. Elevation: 6,700 – 8,230 feet
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	LE		S	WSC	Cottonwood/willow and tamarisk vegetation communities along rivers and streams. Elevation: < 8,500 feet
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	SC		S	WSC	Steep, sheer cliffs overlooking woodlands, riparian areas, or other habitats supporting avian prey species in abundance. Elevation: < 9,000 feet
<i>Gymnogyps californianus</i>	California Condor	LE				High desert canyonlands and plateaus. Elevation: varies
<i>Haliaeetus leucocephalus</i>	Bald Eagle	SC		S	WSC	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey. Elevation: varies
<i>Haliaeetus</i>	Bald Eagle	LT		S	WSC	Wintering habitat will have an



Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>leucocephalus</i> (wintering pop.)		PDL				adequate food supply and open water such as river rapids, impoundments, dam spillways, lakes, and estuaries. Elevation: varies.
<i>Megaceryle alcyon</i>	Belted Kingfisher				WSC	Rivers, brooks, ponds, lakes, coasts, streams, tidal creeks, mangroves, swamps, and estuaries. Elevation: 1,840–8,400 feet
<i>Pandion haliaetus</i>	Osprey				WSC	Nests in coniferous trees, alongside or near rivers and lakes in the White Mountains and across the Mogollon Plateau. Elevation: 6,000–7,800 feet
<i>Pelecanus occidentalis californicus</i>	California Brown Pelican	PDL				Coastal land and islands; species found around many Arizona lakes and rivers. Elevation: varies
<i>Pica hudsonia</i>	Black-billed Magpie				WSC	Open country with scattered trees, brushy habitats, sagebrush communities, riparian and open woodland, croplands, and pastures. During breeding season, they prefer thickets in riparian areas, often associated with open meadows. Elevation: 4,880–5,490 feet
<i>Pinicola enucleator</i>	Pine Grosbeak				WSC	Open coniferous (less commonly mixed coniferous-deciduous) forest and forest edge; in migration and winter also in deciduous forest, woodland, second growth, and shrubbery. Elevation: 2,000–10,000 feet
<i>Setophaga ruticilla</i>	American Redstart				WSC	Breeding habitat is comprised of mature and second growth wooded habitats. Winter and migration habitats include various kinds of forests, woodlands, scrublands, and thickets, including mangroves. Elevation: 5,190–7,365 feet
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	LT		S	WSC	Nests in canyons and dense forests with multilayered foliage structure. Elevation: 4,100–9,000 feet
FISH						
<i>Catostomus clarki</i>	Desert Sucker	SC	S			Found in rapids and flowing pools of streams and rivers primarily over bottoms of gravel-rubble with sandy silt in the interstices. Elevation: 480–8,840 feet
<i>Catostomus insignis</i>	Sonora Sucker	SC	S			Variety of habitats from warm water rivers to trout streams. Elevation: 1,210–8,730 feet

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>Catostomus</i> sp. 3	Little Colorado Sucker	SC		S	WSC	In creeks, small to medium rivers, and impoundments. Predominantly found in pools with abundant cover. Also found in riffles. Elevation: 2,200–7,100 feet
<i>Gila cypha</i>	Humpback Chub	LE			WSC	Large, warm turbid rivers, especially canyon areas with deep fast water. Elevation: < 4,000 feet
<i>Gila intermedia</i>	Gila Chub	LE		S	WSC	Pools, springs, cienegas, and streams. Elevation: 2,000–5,500 feet
<i>Gila robusta</i>	Roundtail Chub	SC		S	WSC	Cool to warm water, mid-elevation streams and rivers where typical adult microhabitat consists of pools up to 6.5 feet deep adjacent to swifter riffles and runs. Cover is usually present. Elevation: 1,210–7,220 feet
<i>Lepidomeda vittata</i>	Little Colorado Spinedace	LT		S	WSC	Moderate to small streams in pools and riffles with water flowing over gravel and silt. Elevation: 4,000–8,000 feet
<i>Oncorhynchus apache</i>	Apache Trout	LT		S	WSC	Presently restricted to cold mountain streams with many low gradient meadow reaches. Elevation: > 5,000 feet
<i>Rhinichthys osculus</i>	Speckled Dace	SC	S			Bottom dweller found in rocky riffles, runs, and pools of headwaters, creeks, and small to medium rivers. Rarely found in lakes. Elevation: 1,550–8,920 feet
<i>Tiaroga cobitis</i>	Loach Minnow	LT		S	WSC	Turbulent, rocky riffles of mainstream rivers and tributaries. Moderate to swift current velocity and gravel or cobble substrates.
<i>Xyrauchen texanus</i>	Razorback Sucker	LE		S		Riverine and lacustrine areas, generally not in fast-moving water; may use backwaters. Elevation: < 6,000 feet
INVERTEBRATES						
<i>Anodonta californiensis</i>	California Floater	SC		S		Shallow areas, less than 6 feet deep in unpolluted lakes, reservoirs, and perennial streams. Adult mussels typically live in mud or sand and juveniles in loose sand. Elevation: 4,000–8,670 feet
<i>Daihinibaenetes arizonensis</i>	Arizona Giant Sand Treader Cricket	SC	S	S		Burrow is excavated to a depth of about 18 inches, in sand dunes and sandy washes.
<i>Oxyloma haydeni kanabensis</i>	Kanab Ambersnail	LE	S	S		Travertine seeps and springs in Grand Canyon National Park. Elevation: 2,900 feet
<i>Psephenus</i>	White	SC		S		Cold, fast-flowing high elevation

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>montanus</i>	Mountains Water Penny Beetle					streams in the White Mountains. Elevation: 6,720–8,830 feet
<i>Pyrgulopsis trivialis</i>	Three Forks Springsnail	C	S	S		Springs and spring-fed creeks. Firm substrate such as cobble, gravel, woody debris, and aquatic vegetation are essential for egg laying and grazing. Elevation: 8,220–8,459 feet
<i>Speyeria nokomis nitocris</i>	Mountain Silverspot Butterfly			S		Alpine meadows. Elevation: > 8,000 feet
MAMMALS						
<i>Euderma maculatum</i>	Spotted Bat	SC			WSC	Varied. Found from low desert in southwestern Arizona to high desert and riparian habitats in northwestern Arizona and Utah, and conifer forests in northern Arizona and other western states. Elevation: varies
<i>Idionycteris phyllotis</i>	Allen's Big-eared Bat	SC	S			Ponderosa pine, pinyon-juniper, Mexican woodland, and riparian areas of sycamores, cottonwoods, and willows. Roosts in caves and abandoned mineshafts. Elevation: 1,320–9,800 feet
<i>Microtus mexicanus navaho</i>	Navajo Mexican Vole	SC		S	WSC	Occupies prostrate thickets of a variety of shrubs that provide dense cover in areas of high litter and bare ground. Also dry, grassy areas, usually adjacent to ponderosa pine forests, but sometimes as low as juniper woodland or stands of sagebrush. Elevation: 3,800–9,700 feet
<i>Mustela nigripes</i>	Black-footed Ferret	LE				Grassland plains, generally found in association with prairie dogs. Elevation: < 10,500 feet
<i>Myotis occultus</i>	Arizona Myotis	SC	S			Ponderosa pine and oak-pine woodland near water. Also found along permanent water or in riparian forest in some desert areas along the lower Colorado and Verde rivers. Elevation: 2,400–9,200 feet
<i>Myotis volans</i>	Long-legged Myotis	SC	S			Primarily a coniferous forest bat, it may also be found in riparian and desert habitats. This species utilizes a variety of roosts including abandoned buildings, cracks in the ground, crevices in cliff faces, and spaces behind exfoliating tree bark. Elevation: 6,600–10,000 feet
<i>Perognathus flavus</i>	Springerville Pocket Mouse	SC				Prairies of sandy, gravelly, or rocky areas with sparse vegetation

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>goodpasteri</i>						of various grasses and forbs. Plains-like short grassland that is interspersed with volcanic rock just north of Springerville. Elevation: 5,240–7,020 feet
<i>Sorex palustris</i>	American Water Shrew				WSC	Boreal and montane riparian habitats. Found in shallow tunnels and runways through grasses, sedges, reeds, willow and alder thickets, and other vegetation along ponds, marshes, and edges of swift-flowing streams with rocks, logs, crevices, and overhanging banks. Elevation: 8,200–9,630 feet
<i>Spermophilus tridecemlineatus monticola</i>	White Mountains Ground Squirrel			S		Open short grass subalpine fields to open grass-sedge meadows. Elevation: 8,500–9,500 feet
<i>Zapus hudsonius luteus</i>	New Mexican Jumping Mouse	C		S	WSC	Moist meadows near streams with willow or alder; moist grassland is preferred, and heavily wooded areas are avoided. Permanent running water. Elevation: 6,500–9,430 feet
PLANTS						
<i>Allium gooddingii</i>	Goodding Onion	SC		S	HS	Moist shaded canyon bottoms in climax conifer forests. Elevation: 7,000–10,600 feet
<i>Asclepias welshii</i>	Welsh's Milkweed	LT			HS	Open stabilized desertscrub dunes and lee side of active dunes. Elevation: varies
<i>Astragalus cremnophylax</i> var. <i>cremnophylax</i>	Sentry Milk-vetch	LE			HS	Pinyon-juniper-cliffrose on a white layer of limestone. Elevation: > 4,000 feet
<i>Astragalus nutriosensis</i>	Nutrioso Milk-vetch	SC			SR	Mesa tops. Elevation: 7,190–7,780 feet
<i>Astragalus xiphoides</i>	Gladiator Milk Vetch	SC			SR	Grasslands and alluvial plains. Elevation: 5,000–6,000 feet
<i>Botrychium crenulatum</i>	Crenulate Moonwort	SC		S		Local in marshy or springy areas. In the San Francisco Peaks usually in patches of bare gravelly soil in rocky terrain, among scattered spruce and fallen logs. Elevation: 10,000–11,000 feet
<i>Calypso bulbosa</i>	Western Fairy Slipper				SR	Cool understory of moist mixed conifer and subalpine forests with ponderosa pine, aspen, or spruce-fir, bogs, and along streams, in rich organic soil. Elevation: 8,000–10,000 feet
<i>Carex chihuahuensis</i>	A Sedge			S		Wet soil in streambeds, shallower draws in pine-oak forest and riparian woodland. Elevation: 3,600–7,200 feet

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>Carex specuicola</i>	Navajo Sedge	LT			HS	Silty soils at shady seeps and springs. Elevation: 5,700–6,000 feet
<i>Castilleja mogollonica</i>	White Mountains Paintbrush	SC		S	SR	Moderately drained sites within wet grassy meadows and cienegas of high elevations associated with permanent or intermittent creeks. Elevation: 8,500–9,500 feet
<i>Chrysothamnus molestus</i>	Tusayan Rabbitbrush	SC		S		Typically found in open pinyon-juniper grasslands on slopes and flats, where periodic fires naturally occur at an interval of every 15–30 years. Seldom found on steep hillsides. Elevation: 5,710–6,880 feet
<i>Cimicifuga arizonica</i>	Arizona Bugbane	SC CA		S	HS	Moist, loamy soil between coniferous and riparian ecotones. Elevation: 5,300–7,000 feet
<i>Cypripedium parviflorum</i> var. <i>pubescens</i>	Yellow Lady's-slipper				HS	Grows in boggy and swampy areas, damp woods, near rivers or canal banks, and wet meadows. It has also been found in rocky wooded hillsides on north- or east-facing slopes, wooded loess river bluffs, and moist creek sides or swales in spruce zones. Elevation: 6,000–9,560 feet
<i>Draba standleyi</i>	Standley Whitlow-grass	SC				Cracks and crevices of igneous rocks and boulders, in moist, shaded situations, at high elevations. Elevation: 5,000–9,260 feet
<i>Eremocrinum albomarginatum</i>	Utah Solitaire Lily			S	SR	Occurs in sandy places and “salt desert” shrub communities, usually in “blow” sand or on sand dunes. Elevation: 4,967–5,500 feet
<i>Erigeron rhizomatus</i>	Zuni (Rhizome) Fleabane	LT				Associated with the Church Rock and Owl Rock member of the Chinle Formation, inhabiting exposed slopes of detrital clay hillsides, with little other vegetation. Elevation: 7,600–7,700 feet
<i>Goodyera repens</i>	Lesser Rattlesnake Plantain				SR	Moderate to heavy shade in mixed fir, spruce, aspen, and conifer forest. Found on nearly flat to fairly steep terrain, including meadows. Thinly rooted in the duff and humus in damper parts of the forest. Elevation: 8,000–10,000 feet
<i>Ipomoea plummerae</i> var. <i>cuneifolia</i>	Huachuca Morning Glory			S		Open rocky to gravelly slopes, in openings of pine forests or oak-manzanita scrub; wet open areas. Elevation: 4,500–9,000 feet



Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>Malaxis porphyrea</i>	Purple Adder's Mouth				SR	Mixed conifer forest. Most commonly found near slightly damp, mossy, or grassy places in slightly open forest areas. Elevation: 6,920–9,200 feet
<i>Mammillaria wrightii</i> var. <i>wrightii</i>	Wright Fishhook Cactus				SR	Inhabits semidesert grasslands, plains grasslands, pinyon-juniper woodlands, gentle slopes, mesas, and valleys, usually on alluvial or igneous substrates. Elevation: 5,000–8,000 feet
<i>Pediocactus paradigmii</i>	Paradise (Kaibab) Plains Cactus	SC CA	S	S	HS	Pinyon-juniper woodland and shrub/grassland. Elevation: > 4,500 feet
<i>Pediocactus peeblesianus</i> var. <i>fickelseniae</i>	Fickeisen Plains Cactus	C		S	HS	Exposed layers of Kaibab limestone on canyon margins or hills of Navajoan Desert. Elevation: 4,000–5,000 feet
<i>Pediocactus sileri</i>	Siler Pincushion Cactus	LT	S		HS	Desertscrub transitional areas of Navajo, sagebrush and Mohave Deserts. Elevation: 2,800–5,400 feet
<i>Platanthera hyperborea</i>	Boreal Bog Orchid				SR	Wet tundra, stream banks.
<i>Platanthera purpurascens</i>	Slender Bog Orchid				SR	Stream banks, shores, ditches, fens, seeping slopes, roadsides, commonly in thickets, open woods. Elevation: 8,200–10,800 feet
<i>Puccinellia parishii</i>	Parish Alkali Grass	SC			HS	Open saline area below perennially flowing spring; moist soils with salty crust and without dense vegetative cover, downstream from willows that are present at the spring. Elevation: 2,780–7,350 feet
<i>Rumex orthoneurus</i>	Blumer's Dock	SC		S	HS	Mid- to high-elevation wetlands with moist, organic soil adjacent to perennial springs or streams in canyon or meadow situations. Elevation: 4,480–9,660 feet
<i>Salix arizonica</i>	Arizona Willow			S	HS	High elevation wet meadows, streamsides, and cienegas. Elevation: 8,550–10,000 feet
<i>Senecio franciscanus</i>	San Francisco Peaks Groundsel	LT			HS	Alpine tundra. Elevation: > 10,900 feet
<i>Senecio quaerens</i>	Gila Groundsel	SC		S	SR	Damp sites often associated with ponderosa pine. Usually among shrubby or grassy hummocks in partial shade of forest overstory. Elevation: 7,520–9,100 feet
<i>Stellaria porsildii</i>	Porsild's Starwort			S		Partially shaded understory of pine, Douglas fir and oak. Also found in open meadows. Elevation: 7,000–9,200 feet

Scientific Name	Common Name	Status				Habitat Comments
		ESA	BLM	USFS	State	
<i>Streptopus amplexifolius</i>	White Mandarin Twisted Stalk				SR	Rich moist coniferous and deciduous woods. Elevation: < 9,200 feet
<i>Trifolium neurophyllum</i>	White Mountains Clover	SC		S		Wet meadows, springs and along streams. Elevation: 6,500–9,000 feet
<i>Zigadenus virens</i>	Green Death Camas				SR	Montane coniferous forests. Elevation: 3,200–10,500 feet
REPTILES						
<i>Thamnophis eques megalops</i>	Northern Mexican Gartersnake	SC		S	WSC	Densely vegetated habitat surrounding cienegas, cienega-streams, and stock tanks and in or near water along streams in valley floors and generally open areas, but not in steep mountain canyon stream habitat. Elevation: 3,000–8,500 feet
<i>Thamnophis rufipunctatus</i>	Narrow-headed Gartersnake	SC		S	WSC	Pinyon-juniper and pine-oak woodland into ponderosa pine forest; in permanently flowing streams, sometimes sheltered by broadleaf deciduous trees. Elevation: 2,440–8,080 feet
Sources: AGFD 2008a and 2008b, AZNP 2008, Efloras 2008, NatureServe 2008, PFAF 1997, USFWS 2008d, USFS 2008b.						
Notes: C = Candidate; CA = Conservation Agreement; LE = Listed Endangered; LT = Listed Threatened PDL = Proposed for Delisting; SC = Species of Concern ; S = Sensitive ; SR = Salvage Restricted WSC = Wildlife of Special Concern in Arizona; HS = Highly Safeguarded						

#### Navajo Nation Endangered Species

Scientific Name	Common Name	Group Number	Habitat Comments
AMPHIBIANS			
<i>Rana pipiens</i>	Northern Leopard Frog	2	Variety of habitats including grassland, brushland, woodland, and forest ranging high into mountains, usually in permanent waters with rooted aquatic vegetation; also frequents ponds, canals, marshes, springs, and streams. Elevation: 2,690–9,155 feet
BIRDS			
<i>Accipiter gentilis</i>	Northern Goshawk	4	Breeds in high, forested mountains and plateaus statewide. Elevation: 4,750–9,120 feet
<i>Aechmophorus clarkii</i>	Clark's Grebe	4	Marshes, lakes, and bays. In migration and winter, also sheltered seacoasts, less frequently along rivers. Nests among tall plants growing in water on edge of large areas of open water. Elevation: 440–480 feet
<i>Aegolius acadicus</i>	Northern Saw-whet Owl	4	Dense coniferous or mixed forest, cedar groves, alder thickets, swamps, and tamarack bogs; also, when not breeding, in dense second growth, brushy areas, arid scrub, and open buildings.

Scientific Name	Common Name	Group Number	Habitat Comments
<i>Aquila chrysaetos</i>	Golden Eagle	3	Open country, in prairies, arctic and alpine tundra, open wooded country and barren areas, especially in hilly or mountainous regions. Elevation: 4,000–10,000 feet
<i>Athene cunicularia</i>	Burrowing Owl	4	Variable in open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands, often associated with burrowing mammals. Sometimes in open areas such as vacant lots near human habitation, golf courses, or airports. Elevation: 650–6,140 feet
<i>Buteo regalis</i>	Ferruginous Hawk	3	Breeds in open areas with little topographic relief. Hunting areas are typically open grasslands, preferably those dotted with suitable low hills or short trees that serve as perches. Elevation: 3,500–6,000 feet
<i>Ceryle alcyon</i>	Belted Kingfisher	4	Rivers, brooks, ponds, lakes, coasts, streams, tidal creeks, mangroves, swamps, and estuaries. Elevation: 1,840–8,400 feet
<i>Charadrius montanus</i>	Mountain Plover	4	Frequent xeric or disturbed uplands; rarely found near water. They are considered to be strongly associated with sites of heaviest grazing pressure, to the point of excessive surface disturbance. Short vegetation, bare ground, and a flat topography are now recognized as habitat-defining characteristics at both breeding and wintering locales. Elevation: 3,000–8,000 feet
<i>Cinclus mexicanus</i>	American Dipper	3	Montane streams, primarily swift-flowing, less frequently along mountain ponds and lakes.
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	2	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries). Elevation < 6,500 feet
<i>Dendragapus obscurus</i>	Blue Grouse	4	Coniferous forest, especially fir, mostly in open situations with a mixture of deciduous trees and shrubs.
<i>Dendroica petechia</i>	Yellow Warbler	4	Open scrub, second-growth woodland, thickets, farmlands and gardens, especially near water; riparian woodlands, especially of willows.
<i>Empidonax hammondii</i>	Hammond's Flycatcher	4	Cool forest and woodland nesting primarily in dense fir forest. Elevation: 7,500–10,000 feet
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	2	Cottonwood/willow and tamarisk vegetation communities along rivers and streams. Elevation: < 8,500 feet
<i>Falco peregrinus</i>	Peregrine Falcon	4	Steep, sheer cliffs overlooking woodlands, riparian areas, or other habitats supporting avian prey species in abundance. Elevation: < 9,000 feet
<i>Glaucidium gnoma</i>	Northern Pygmy-Owl	4	Forests or open woodlands in foothills and mountains; frequents meadows while foraging.
<i>Gymnogyps californianus</i>	California Condor	4	High desert canyonlands and plateaus. Elevation: varies
<i>Otus flammeolus</i>	Flammulated Owl	4	Mixed conifer, pine, and pine-oak habitats, but they also occur locally in woodlands of pinyon-juniper, oak, and cypress. Elevation: 5,000–8,000 feet

Scientific Name	Common Name	Group Number	Habitat Comments
<i>Patagioenas fasciata</i>	Band-tailed Pigeon	4	Temperate and mountain coniferous and mixed forests and woodlands, especially pine-oak woodlands; also forage in cultivated areas, suburban gardens, and parks. Elevation: 5,200–8,900 feet
<i>Picoides dorsalis</i>	American Three-toed Woodpecker	4	Dense coniferous forests, associated with subalpine fir and Engelmann spruce at higher elevations. Prefer disturbed coniferous forests with trees that exhibit thin, flaky bark such as spruce and lodgepole pine.
<i>Porzana carolina</i>	Sora	4	Shallow freshwater emergent wetlands, less frequently in bogs, fens, wet meadows, and flooded fields, sometimes foraging on open mudflats adjacent to marshy habitat.
<i>Tachycineta bicolor</i>	Tree Swallow	4	Open situations near water, including streams, lakes, ponds, marshes, coastal regions, savannas, pastures, etc.
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	3	Nests in canyons and dense forests with multilayered foliage structure. Elevation: 4,100–9,000 feet
FISH			
<i>Catostomus discobolus</i>	Bluehead Sucker	4	Occupies a wide range of fluvial habitats ranging from cold, clear mountain streams to warm, turbid streams; rarely in lakes. Adults almost always found in moderate- to fast-flowing water above rubble-rock substrate.
<i>Cottus bairdi</i>	Mottled Sculpin	4	Clear, cold-to-warm headwaters, creeks, springs, small rivers, and lakes, with sand and gravel or rocky substrate.
<i>Gila cypha</i>	Humpback Chub	2	Large, warm turbid rivers, especially canyon areas with deep fast water. Elevation: < 4,000 feet
<i>Gila elegans</i>	Bonytail Chub	1	Main stream portions of mid-sized to large rivers (both strong current and pools), usually over mud or rocks. Elevation 235–1,960 feet
<i>Gila robusta</i>	Roundtail Chub	2	Cool to warm water, mid-elevation streams and rivers where typical adult microhabitat consists of pools up to 6.5 feet deep adjacent to swifter riffles and runs. Cover is usually present. Elevation: 1,210–7,220 feet
<i>Ptychocheilus lucius</i>	Colorado Pikeminnow	2	Warm, swift, turbid mainstem rivers. Prefers eddies and pools. Elevation: < 4,000 feet
<i>Xyrauchen texanus</i>	Razorback Sucker	2	Riverine and lacustrine areas, generally not in fast-moving water; may use backwaters. Elevation: < 6,000 feet
INVERTEBRATES			
<i>Oreohelix strigosa</i>	Rocky Mountainsnail	4	Plant community of little importance, ranging from sagebrush to deciduous shrubs and trees and coniferous shrubs and trees. Substrate of great importance, with the presence of exposed limestone almost critical for occurrence. Elevation: varies
<i>Oreohelix</i>	Yavapai	4	Limestone outcrops, but found in most

Scientific Name	Common Name	Group Number	Habitat Comments
<i>yavapai</i>	Mountainsnail		lithologies except granite. Often in very xeric, open, rocky, dry areas.
<i>Oxyloma kanabensis</i>	Kanab Ambersnail	4	Marshes watered by springs and seeps at the base of sandstone cliffs or limestone. Elevation: 3,200 feet
<i>Speyeria nokomis</i>	Western Seep Fritillary	3	Seeps or other wetlands where violets grow, but adults may use adjacent habitats. Elevation: < 7,500 feet
MAMMALS			
<i>Antilocapra americana</i>	Pronghorn	3	Grasslands, sagebrush plains, deserts, and foothills.
<i>Canis lupus</i>	Gray Wolf	1	No particular habitat preference: alpine, desert, forest, grassland, chaparral. Occur in areas with few roads; can occupy semiwild lands if ungulate prey are abundant and if not killed by humans. Elevation: varies
<i>Corynorhinus townsendii</i>	Townsend's Big-eared Bat	4	Summer day roosts are found in caves and mines, from desertscrub up to woodlands and coniferous forests. Night roosts may often be in abandoned buildings. Elevation: 550–8,437 feet
<i>Dipodomys microps</i>	Chisel-toothed Kangaroo Rat	4	Shrub-dominated Great Basin desertscrub communities with relatively high shrub cover and sparse grass cover. Elevation: 3,500–6,500 feet
<i>Dipodomys spectabilis</i>	Banner-tailed Kangaroo Rat	4	Desert grasslands with scattered shrubs, mesquite, or junipers. Scrub or brush-covered slopes, often with creosote bush or acacia on hard or gravelly soil. Elevation 3,500–4,000 feet
<i>Lontra canadensis</i>	Northern River Otter	1	Riparian habitat along rivers and streams with adequate prey. Rivers, streams, lakes, reservoirs, marshes, swamps, and estuaries all provide potential habitat. Elevation: varies
<i>Microtus mogollonensis</i>	Navajo Mountain Vole	4	Mountain meadows, grassy open places in pine, mixed pine-fir-oak, or pinyon-juniper woodland; usually in dry habitat; also grass/sedge along spring or seep.
<i>Mustela nigripes</i>	Black-footed Ferret	2	Grassland plains generally found in association with prairie dogs. Elevation: < 10,500 feet
<i>Ovis canadensis</i>	Bighorn Sheep	3	Mesic to xeric, alpine to desert grasslands or shrub-steppe in mountains, foothills, or river canyons. Elevation: varies
<i>Perognathus amplus cineris</i>	Wupatki (Arizona) Pocket Mouse	4	Various types of desert scrub habitats. Also along scattered scrub oak in some areas. Elevation: 3,900–5,420 feet
<i>Ursus arctos</i>	Grizzly Bear	1	Arctic tundra, alpine tundra, and subalpine mountain forests. Once found in a wide

Scientific Name	Common Name	Group Number	Habitat Comments
			variety of habitats including: open prairie, brushlands, riparian woodlands, and semidesert scrub.
<i>Vulpes macrotis</i>	Kit Fox	4	Primarily open desert, shrubby or shrub-grass habitat.
PLANTS			
<i>Allium gooddingii</i>	Gooding's Onion	3	Moist, shaded canyon bottoms in climax conifer forests. Elevation: 7,000–10,600 feet
<i>Amsonia peeblesii</i>	Peebles Blue-star	4	Sandy desert washes and gravelly hilltops, in grasslands and cold desertscrub. Elevation: 4,000–6,000 feet
<i>Asclepias sanjuanensis</i>	San Juan Milkweed	4	Sandy loam soils, usually in disturbed sites, in juniper savanna and Great Basin desertscrub. Elevation 5,000–5,500 feet
<i>Asclepias welshii</i>	Welsh's Milkweed	3	Open, stabilized desertscrub dunes and lee side of active dunes. Elevation: varies
<i>Astragalus beathii</i>	Beath Milk-vetch	4	Red clay knolls and gullied dry washes on selenium-bearing soils derived from Moenkopi sandstone. Elevation: 4,000–4,800 feet
<i>Astragalus cronquistii</i>	Cronquist Milk-vetch	4	Low, sandy, or gravelly ridges and sandy washes in blackbrush and salt desert shrub communities on sandstone or red sandstone of the Cutler and Morrison formations. Elevation: 3,900–5,000 feet
<i>Astragalus cremnophylax</i> var. <i>hevroni</i>	Marble Canyon Milk-vetch	3	Crevices of Kaibab limestone on exposed outcrops. Elevation: 5,200–5,400 feet
<i>Astragalus cutleri</i>	Cutler's Milk-vetch	2	Selenium-rich clays and alkaline soils of the Mohave and Painted deserts. Elevation: 3,800 feet
<i>Astragalus humillimus</i>	Mancos Milk-vetch	2	Sandstone ledges or mesa tops, often in cracks in the sandstone substrate or in shallow pockets of sandy soil. Elevation: 5,500 feet
<i>Astragalus naturitensis</i>	Naturita Milk-vetch	4	Cracks and ledges of sandstone cliffs and flat bedrock area with some shallow soil development, within pinyon-juniper woodland. Elevation: 5,400–6,700 feet
<i>Astragalus tortipes</i>	Sleeping Ute Milk-vetch	4	Scattered colonies on the lower slopes of ridges and knolls of Cretaceous Mancos Shale that separates mountain foothills from desert badlands. Elevation 5,500–5,700 feet
<i>Camissonia atwoodii</i>	Atwood's Camissonia	4	Salt desert shrub community. Elevation: 3,800–5,000 feet
<i>Carex specuicola</i>	Navajo Sedge	3	Silty soils at shady seeps and springs. Elevation: 5,700–6,000 feet
<i>Clematis hirsutissima</i> var. <i>arizonica</i>	Arizona Leather Flower	4	Usually grows on limestone-derived soils within ponderosa pine and pinyon pine-Rocky Mountain juniper communities.
<i>Cymopterus acaulis</i> var. <i>higginsii</i>	Higgins Biscuitroot	4	Desert shrub communities, often on sandy alluvium of Tropic Shale. Elevation: 5,000 feet
<i>Cystopteris utahensis</i>	Utah Bladder-fern	4	Calcareous cliffs of the Weber Formation; particularly on sandy ledges and in crevices. Elevation: 4,262–8,852 feet
<i>Erigeron</i>	Acoma	3	Shaded, sandy slopes that form at the bases of



Scientific Name	Common Name	Group Number	Habitat Comments
<i>acomanus</i>	Fleabane		eroding sandstone cliffs. Pinyon-juniper woodland; sandstone or dolomite.
<i>vErigeron rhizomatus</i>	Rhizome Fleabane	2	Associated with the Church Rock and Owl Rock member of the Chinle Formation, inhabiting exposed slopes of detrital clay hillsides, with little other vegetation. Elevation: 7,600–7,700 feet
<i>Erigeron sivinskii</i>	Sivinski's Fleabane	4	Steep, barren, shale slopes of the Chinle Formation, in pinyon-juniper woodland and Great Basin Desert Scrub communities. Elevation: 5,800–7,865 feet
<i>Errazurizia rotundata</i>	Round Dunebroom	4	Aromatic shrub growing in large soil-binding clumps in sandy areas. Elevation: 4,620–5,200 feet
<i>Lesquerella navajoensis</i>	Navajo Bladderpod	4	Windward, windswept mesa rims and nearby habitat with little vegetative cover and high insulation. Elevation: 7,213–7,607 feet
<i>Pediocactus bradyi</i>	Brady Pincushion Cactus	2	Benches and terraces in Navajo desert near Marble Gorge. Elevation: 3,850–4,500 feet
<i>Pediocactus peeblesianus</i> var. <i>fickeiseniae</i>	Fickeisen Plains Cactus	3	Exposed layers of Kaibab limestone on canyon margins or hills of Navajoan Desert. Elevation 4,000–5,000 feet
<i>Penstemon navajoa</i>	Navajo Penstemon	3	Open, rocky places in ponderosa pine, Douglas fir, and alpine fir forests. Elevation: 8,200–10,400 feet
<i>Perityle specuicola</i>	Alcove Rock Daisy	4	Dry sites in alcoves and narrow, protected canyons on Navajo Sandstone and Cedar Mesa formations. Found within pinyon-juniper and desert shrub communities. Elevation: 3,700–4,200 feet
<i>Phacelia indecora</i>	Bluff Phacelia	4	Salt desert shrub community. Elevation: 4,500 feet
<i>Platanthera zothecina</i>	Alcove Bog-orchid	3	Moist stream banks, seeps, and hanging gardens; requires constant moisture. Elevation: 5,000–9,000 feet
<i>Puccinella parishii</i>	Parish's Alkali Grass	4	Open saline area below perennially flowing spring; moist soils with salty crust and without dense vegetative cover, downstream from willows that are present at the spring. Elevation: 2,780–7,350 feet
<i>Salvia pachyphylla</i>	Bigleaf Sage	4	Dry slopes, pinyon-juniper woodland.
<i>Sclerocactus cloveriae brackii</i>	Brack Hardwall Cactus	4	Sandy clay strata of the Nacimiento Formation in sparse shadscale scrub. Elevation: 5,000–6,400 feet
<i>Sclerocactus mesae-verdae</i>	Mesa Verde Cactus	2	Dry, low exposed hills and mesas in full sun of Mancos or Fruitland clays in the desert. Elevation: 3,900–6,600 feet
<i>Zigadenus vaginatus</i>	Alcove Death Camas	4	Hanging garden communities and in canyon bottoms along seeps. Elevation: 3,700–6,200 feet
REPTILES			
<i>Lampropeltis triangulum</i>	Milk Snake	4	Open, flat, and undulating open grassland, grassland scrub, desert grassland, and sagebrush desert. Elevation: 3,840–5,780 feet
<i>Sauromalus ater</i>	Chuckwalla	4	Predominantly found near cliffs, boulders, or

Scientific Name	Common Name	Group Number	Habitat Comments
			rocky slopes, where they use rocks as basking sites and rock crevices for shelter. They can be found in rocky desert, lava flows, hillsides, and outcrops. Creosote bush occurs throughout most of range. Elevation: < 6,000 feet
<p>Sources: AGFD 2008b, Efloras 2008, NatureServe 2008, NNDNR 2005, NMRPTC 1999</p> <p>Notes: GROUP 1: Those species or subspecies that no longer occur on the Navajo Nation.</p> <p>GROUP 2 (G2) &amp; GROUP 3 (G3): "Endangered" -- Any species or subspecies whose prospects of survival or recruitment within the Navajo Nation are in jeopardy or are likely within the foreseeable future to become so.</p> <p>G2: A species or subspecies whose prospects of survival or recruitment are in jeopardy.</p> <p>G3: A species or subspecies whose prospects of survival or recruitment are likely to be in jeopardy in the foreseeable future.</p> <p>GROUP 4: Any species or subspecies for which the Navajo Nation Department of Fish and Wildlife (NNDFWL) does not currently have sufficient information to support their being listed in G2 or G3 but has reason to consider them. The NNDFWL will actively seek information on these species to determine if they warrant inclusion in a different group or removal from the list.</p>			

### Hopi Nation Culturally Sensitive Species

Scientific Name	Common Name	Habitat Comments
<b>BIRDS</b>		
<i>Aquila chrysaetos</i>	Golden Eagle	Open country, in prairies, arctic and alpine tundra, open wooded country and barren areas, especially in hilly or mountainous regions. Elevation: 4,000–10,000 feet
<i>Buteo jamaicensis</i>	Red-tailed Hawk	Wide variety of open woodland and open country with scattered trees, rarely in denser forest. Elevation: varies
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey. Elevation: varies
Sources: Hopi Nation 2008 and NatureServe 2008		

### New River Focus Area

The New River Focus Area is located in the central portion of Arizona and largely consists of land protected by the federal government through national parks, monuments, or forests. State land makes up a sizable portion, while private lands make up the smallest portion (Figure 2-4c).

This region is fairly diverse, with six biotic communities. However, two communities stretch east to west and dominate a large portion of this Focus Area between the elevations of 3,000 to 6,500 feet. The Interior Chaparral is a dense to partially open habitat dominated by scrub live oak at lower elevations and manzanita at higher elevations. Large swaths of land within this community are dominated by grasses, cacti, and agaves, making up the Semidesert Grassland biotic community. The diversity of this Focus Area reaches into the ponderosa pine, fir, and aspen of the Montane Coniferous Forest at elevations of 9,000 feet and into the mesquite, saguaro, and cholla of the Arizona Upland Sonoran Desertscrub at elevations of 1,000 feet.

When large areas of land in Arizona are considered, a great deal of habitat diversity is evident. The same is true of the wildlife species living in these habitats. Tables 2.4 and 2.5 represent all Special Status Species of the Coconino-Yavapai Focus Area protected by State and/or federal agencies. To help protect these species, groups and coalitions have generated data representing critical areas to wildlife survival throughout Arizona to aid in planning future development.

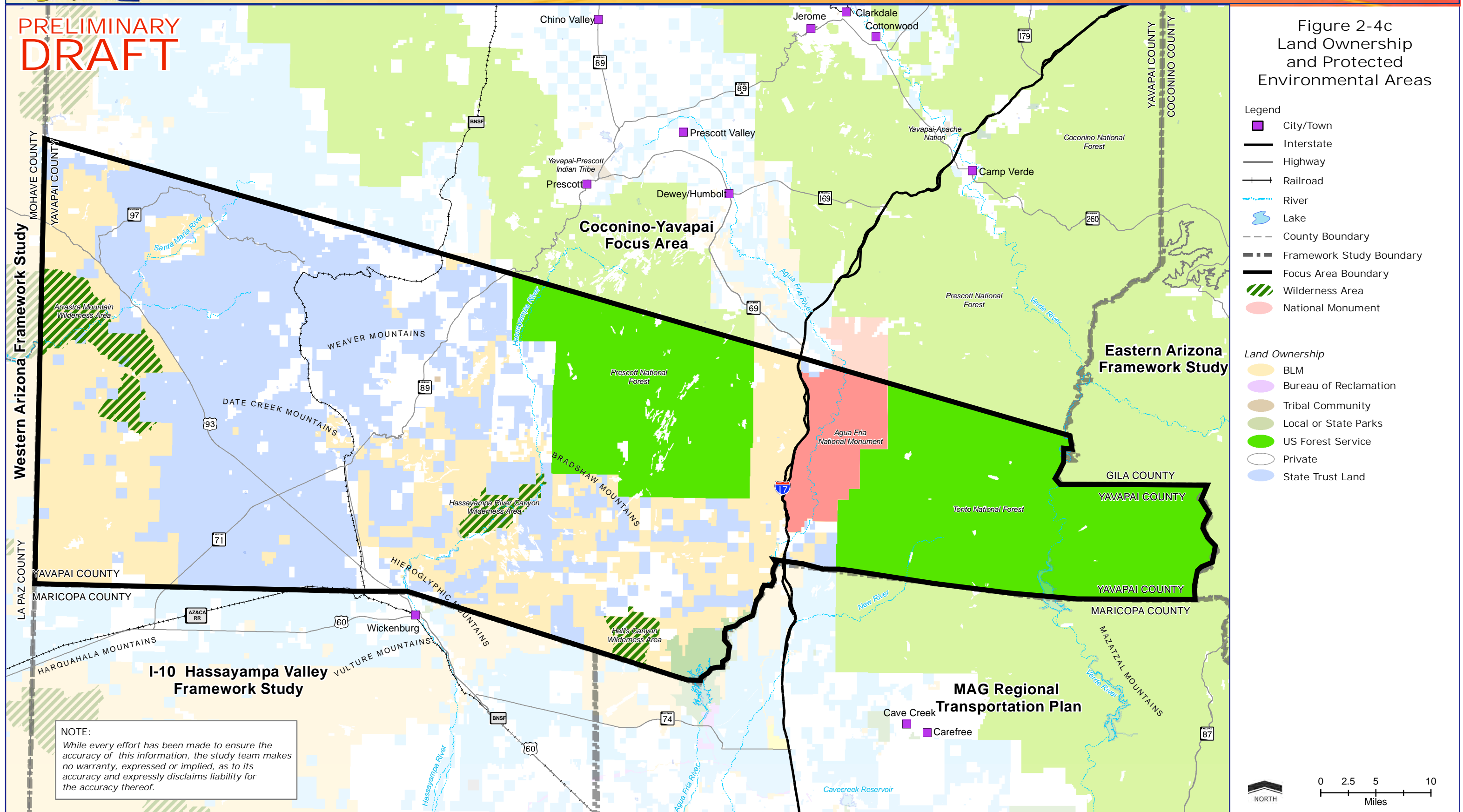
### Sensitive Biological Lands

Sensitive Biological Lands are important to the preservation of wildlife species in Arizona. They encompass both protected and unprotected habitats that wildlife relies on for survival. They consist of Priority Conservation Areas, Priority Grasslands, and Wildlife Linkages across Arizona.



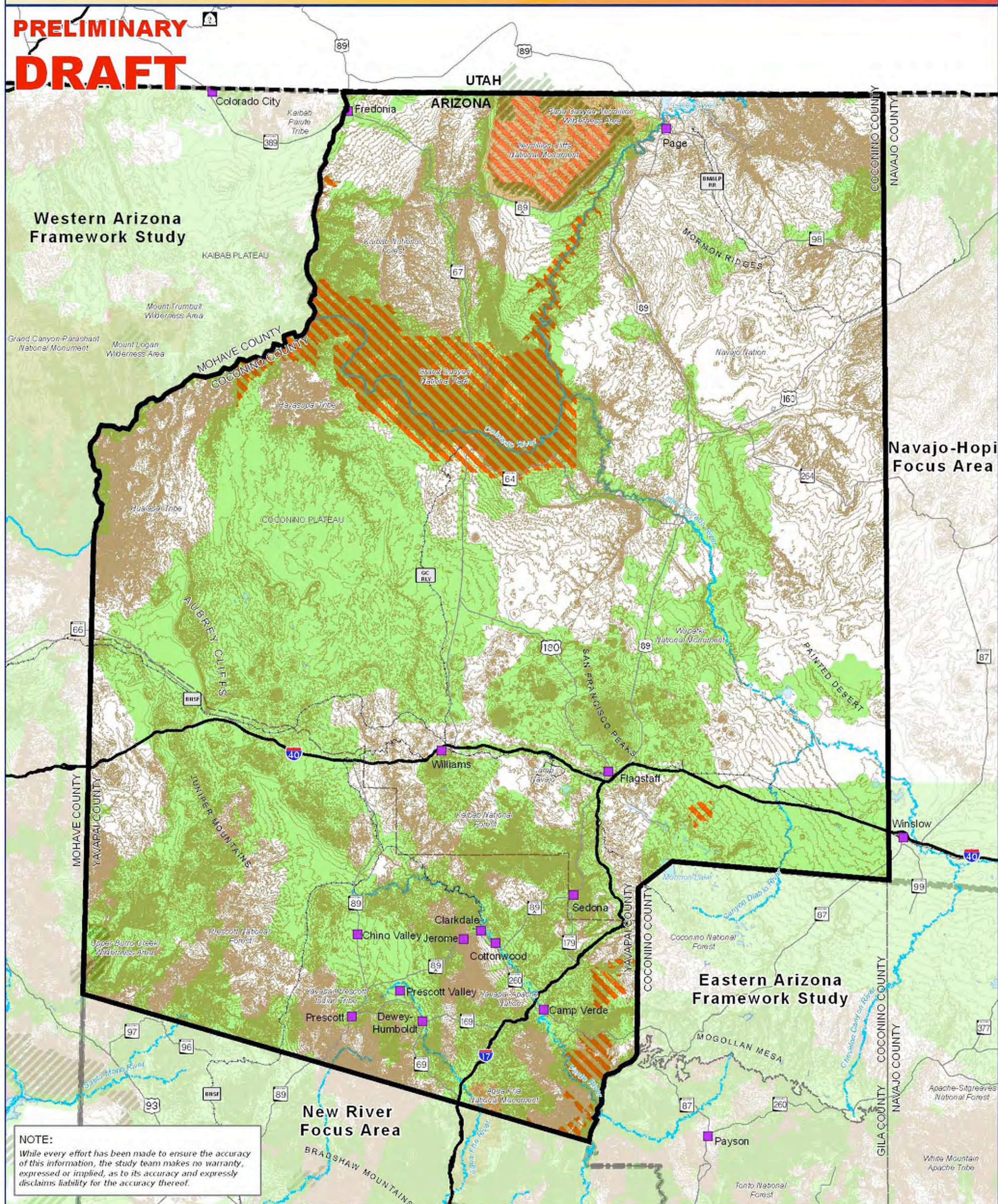
# Regional Framework Study: Northern Arizona, New River Focus Area

PRELIMINARY  
DRAFT





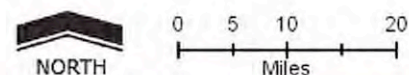
**PRELIMINARY  
DRAFT**



**Figure 2-5a Natural Infrastructure**

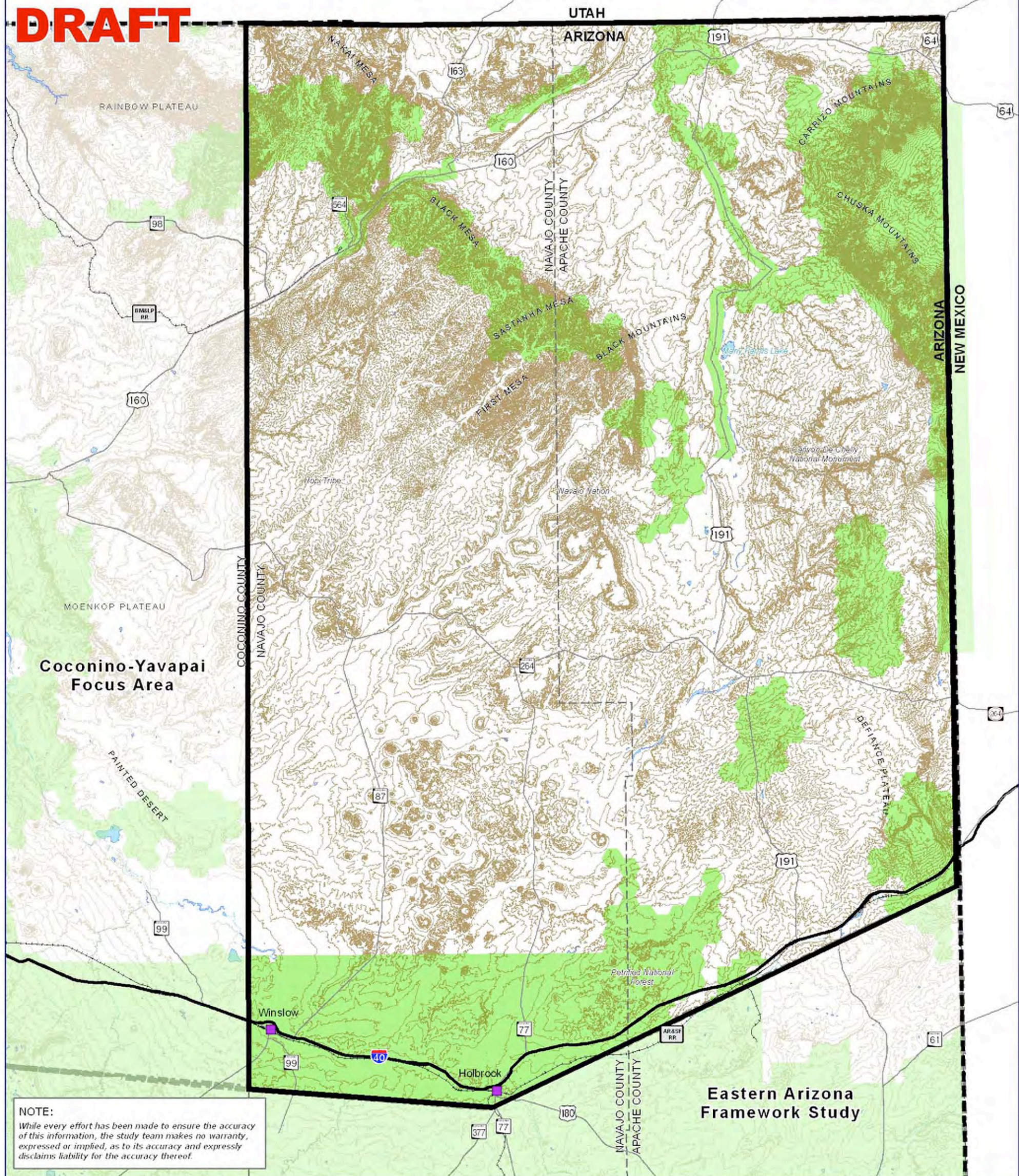
- Legend**
- City/Town
  - Interstate
  - Highway
  - Railroad
  - River
  - Lake
  - County Boundary
  - State Boundary
  - Topography (100' Contours)
  - Framework Study Boundary
  - Focus Area Boundary
  - Wilderness Area
  - National Monument
  - Natural Infrastructure
  - AWC Roadless Character Area\*
  - Sensitive Biological Lands\*\*

**NOTE:**  
\* Arizona Wildlife Coalition's (AWC) Roadless Character Areas are wildlands and roadless areas protected by AWC on federal lands in Arizona  
\*\* Sensitive Biological Lands include 1) Priority Grasslands, 2) Priority Conservation Areas; and 3) Arizona Wildlife Linkages





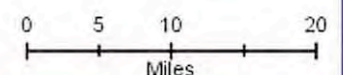
**PRELIMINARY  
DRAFT**



**Figure 2-5b Natural Infrastructure**

- Legend**
- City/Town
  - Interstate
  - Highway
  - Railroad
  - River
  - Lake
  - County Boundary
  - State Boundary
  - Framework Study Boundary
  - Focus Area Boundary
  - Topography (100' Contours)
  - Natural Infrastructure**
  - Sensitive Biological Lands\*

**NOTE:**  
\* Sensitive Biological Lands include 1) Priority Grasslands, 2) Priority Conservation Areas; and 3) Arizona Wildlife Linkages







# Regional Framework Study: Northern Arizona, New River Focus Area

PRELIMINARY  
DRAFT

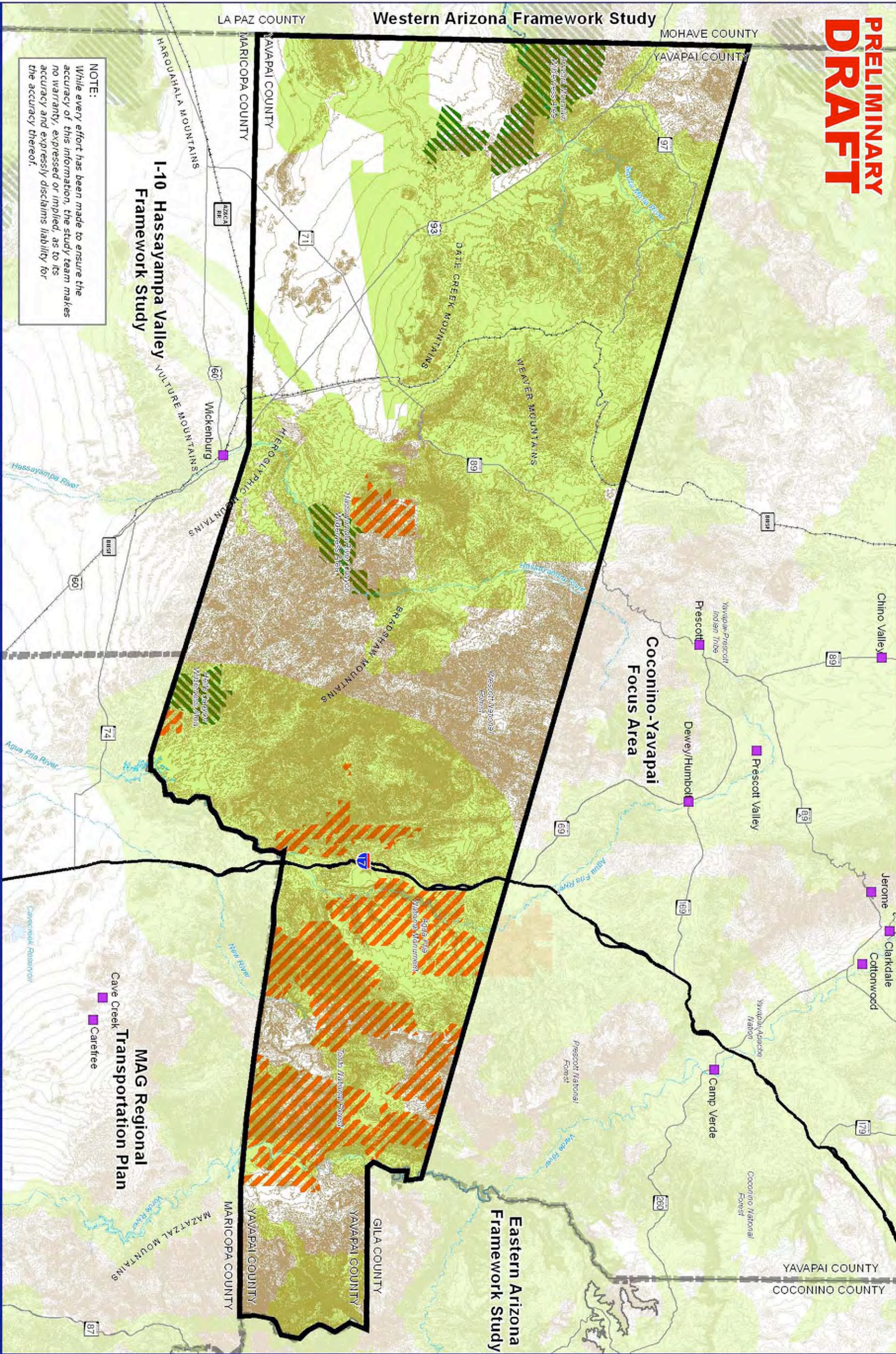
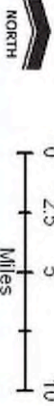


Figure 2-5c  
Natural Infrastructure

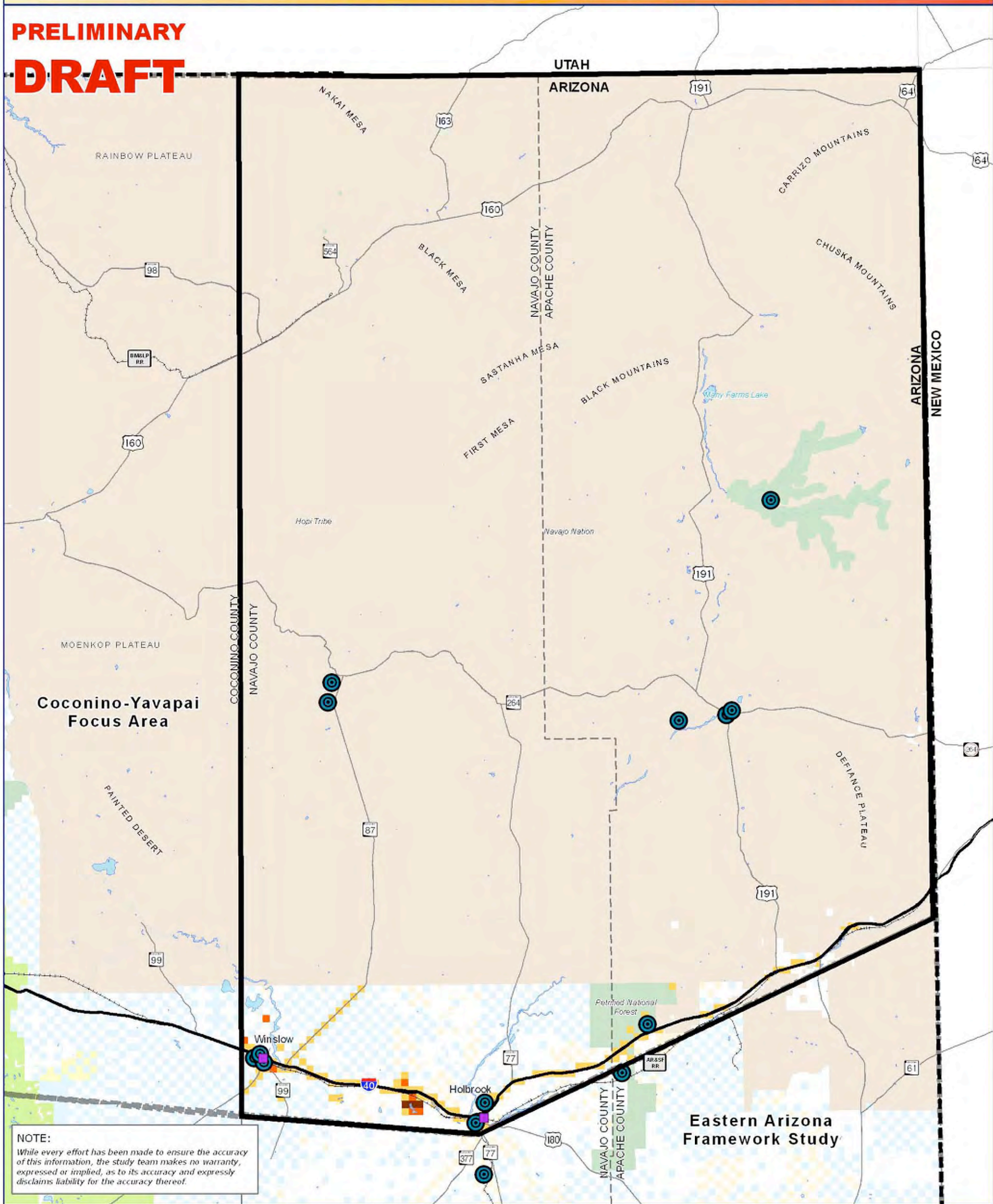
NOTE:  
\* Arizona Wildlife Coalition's (AWC) Roadless Character Areas are wildlands and roadless areas protected by AWC on federal lands in Arizona  
\*\* Sensitive Biological Lands include 1) Priority Grasslands, 2) Priority Conservation Areas, and 3) Arizona Wildlife Linkages



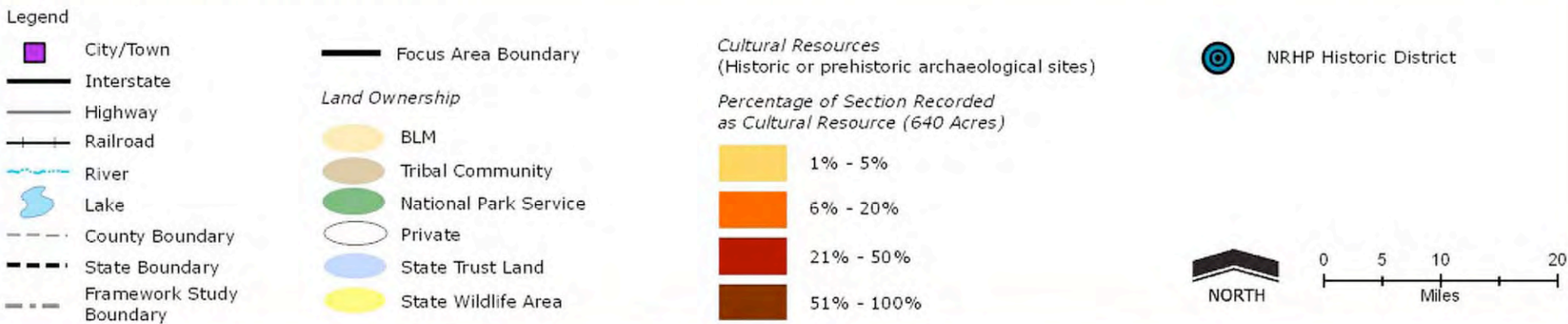
NOTE:  
While every effort has been made to ensure the accuracy of this information, the study team makes no warranty, expressed or implied, as to its accuracy and expressly disclaims liability for the accuracy thereof.



**PRELIMINARY  
DRAFT**



**Figure 2-6b Cultural Resources**





## Wildlife Linkages (Arizona Wildlife Linkages Workgroup)

Wildlife linkages are areas designated by the Arizona Wildlife Linkages Workgroup to be crucial to connecting wildlife habitats. These habitats span roads, railroads, fences, canals, and urban development throughout Arizona. The non-binding recommendations can be used as an informational resource for planners and engineers to consider while developing land use plans. Wildlife linkages within the New River Focus Area are:

- Hassayampa River-Red Picacho
- Wickenburg
- Tres Alamos Wilderness
- Bradshaw Mountains-Agua Fria National Monument
- Hualapai Mountains-Bagdad

## Arizona Wilderness Coalition's (AWC) Roadless Character Areas

These are wilderness and roadless areas protected by AWC on federal lands in Arizona.

### 2.2.4 Cultural Resources

Northern Arizona is renowned for its rich cultural heritage and exceptional array of archaeological, historic, and traditional Native American cultural resources. Considerations of the identification, preservation, and management of cultural resources are integral aspects of any future land use planning document, as these important resources define our history and heritage at the local, State, and National levels.

The benchmark used to identify historic properties for management purposes is typically their eligibility to the National Register of Historic Places (NRHP) according to guidelines issued by the Secretary of the Interior and the NPS. Historic properties include prehistoric and historic districts, sites, buildings, structures, or objects included in or eligible for inclusion in the NRHP. Historic properties may be eligible for nomination to the NRHP if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet at least one of the following criteria:

- Criterion A – be associated with events that have made a significant contribution to the broad patterns of our history
- Criterion B – be associated with the lives of persons significant in our past
- Criterion C – embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- Criterion D – have yielded, or may be likely to yield, information important in prehistory or history

Properties may be of local, state, or national importance. Typically, historic properties are at least 50 years old, but younger properties may be considered for NRHP listing if they are of exceptional importance.